COMPACT 45 &47

OWNER MANUAL

CLEANCO TRUCKMOUNTS

VERSION 09 (MAR 08,2009)

TABLE OF CONTENTS

Table of Contents……1
Parts list ……..……..2
Machine Data Log ..……3

SAFETY

Safety Instructions ..……..4

OPERATION & SYSTEMS

Technical Specifications …… ..6
General Information ..…… ..7
De-flooding Operations……9
Freezing Protection……9
Shutdown and Daily Maintenance…12
Panel Overview ..……...15
Water Pumping and Heat
Transfer System……..22
Chemical Injection System ……26
Vacuum System ……..27

MAINTENANCE & SERVICE

Maintenance Schedule……12
Vacuum Pump……28
Water Pump……29
Vacuum Inlet Filter……29
Vacuum Relief Valve……29
Vacuum Drive Belts……29
Pressure Regulator……30
Vacuum Hoses……30
High Pressure Hoses……30
Optional Waste Pump-out……30
Engine Coolant Replacement……...30
Waste Tank Strainer Basket……31
Troubleshooting……32

WARRANTY

5 Year warranty ……92

DRAWING AND PARTS LIST

Front Panel 38
Recovery Tank 45
Water Pump 47
Vacuum Blower 48
Kit, installation 45 &47.....53
Heat Exchanger..... 57
P.T.I. 61
Cover Holder Kit 63
PTO Shaft 67
Direct Feed option 69
CAD Panel Mount Option.....71
C.A.D. External Option 72
Horizontal F/W Tank 74
Stout F/W Tank 76
F/W Tank Aqua storage 78
Electric Hose Reel set 80
Wand 2 Jet 82
Wand Single Jet 83
Stair Tool 30" Swivel 84
Stair Tool 40" 85
Upholstery tool 3" 86
Wand 1-3/4" S-Bend 4 Jet.....87
Stair Tool 36" S-Bend.....88
Detail Tool 4" 1000 PSI.....89

WIRING

Wiring Diagrams 90

MACHINE DATA LOG/OVERVIEW

MODEL _____

DATE OF PURCHASE _____

SERIAL NUMBER _____

COMPANY NAME _____

YOUR DEALER

NAME: _____

ADDRESS: _____

PHONE NUMBER: _____

Welcome… and congratulations on the purchase of your Mobile Cleaning Unit. This instruction manual is a guide for operating and servicing your unit. **Read this manual completely before installing or operating this unit.** This unit offers you personal convenience. All of your instrumentation and controls have been positioned to give you easy access for operation and daily maintenance.

Proper operation and service are essential to the efficient functioning of this unit. When maintained correctly, this unit will have a long, trouble-free life.

The service methods described in this manual are explained in such a manner that servicing may be performed accurately and safely. Proper service varies with the choice of procedure, the skill of the mechanic, and the tools or parts available. Before attempting any repair, make certain that you are thoroughly familiar with this equipment and are equipped with the proper tools. Any questions pertaining to operating or servicing this unit should be directed to your nearest dealer.

THIS UNIT MUST BE INSTALLED BY THE DEALER FROM WHOM YOU PURCHASED IT IN ACCORDANCE WITH THE PRESCRIBED INSTALLATION PROCEDURES.

MAKE CERTAIN THAT THE WARRANTY CARD IS FILLED OUT AT THE TIME OF INSTALLATION AND IS RETURNED TO YOUR DEALER.

ESTEAM MANUFACTURING LTD
3750 19TH ST. N.E
CALGARY, ALBERTA, CANADA T2E 6V2

Information in this document is subject to change without notice and does not represent a commitment on the part of Esteam Manufacturing Ltd.

IMPORTANT SAFETY INSTRUCTIONS

When using this machine, basic precautions must always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE

These symbols mean WARNING or CAUTION. Failure to follow warnings and cautions could result in fatality, personal injury to yourself and/or others, or property damage. Follow these instructions carefully!

Read the operator's manual before installing or starting this unit. Failure to adhere to instructions could result in severe personal injury or could be fatal.

Operate this unit and equipment only in a well-ventilated area. Exhaust fumes contain carbon monoxide which is an odorless and deadly poison that can cause severe injury or fatality. **DO NOT** run this unit in an enclosed area. **DO NOT** operate this unit where the exhaust may enter any building doorway, window, vent, or opening of any type.

DO NOT store any type of flammable material in the vehicle.

DO NOT operate engine if gasoline is spilled. Avoid creating any ignition until the gasoline has been cleaned up. Never use gasoline as a cleaning agent.

DO NOT place hands, feet, hair, or clothing near rotating or moving parts. Avoid any contact with moving parts! Rotating machinery can cause injury or fatality.

Never operate this unit without belt guards or hoods. The high speed moving parts, such as belts and pulleys, should be avoided while this unit is running. Severe injury, damage, or fatality may result.

DO NOT service this unit while it is running. The high-speed mechanical parts as well as high temperature components may result in severe injury or severed limbs.

Never touch electrical wires or components while the engine is running. They can be sources of electrical shock.

Before servicing this unit, allow it to "cool down." This will prevent burns from occurring.

Water under high pressure at high temperature can cause burns, severe personal injury, or fatality. Shut down machine, allow to cool down, and relieve system of all pressure before removing valves, caps, plugs, fittings, filters, and bolts.

Always wear hearing protection when unit is running. Always comply with local noise ordinance when operating units.

Dangerous Acid, Explosive Gases! Batteries contain sulfuric acid. To prevent acid burns, avoid contact with skin, eyes and clothing. Batteries produce explosive hydrogen gas while being charged. To prevent a fire or explosion, charge batteries only in well ventilated areas. Keep sparks, open flames, and other sources of ignition away from the battery at all times. Keep batteries out of the reach of children. Remove all jewelry when servicing batteries.

Before disconnecting the negative (-) ground cable, make sure all switches are OFF. If ON, a spark will occur at the ground cable terminal which could cause an explosion if hydrogen gas or gasoline vapors are present. When disconnecting the battery, **ALWAYS** disconnect the negative (-) terminal FIRST.

DO NOT smoke around the unit. Gas fumes may accumulate and be ignited. The battery is also extremely flammable. This will prevent possible explosions.

DO NOT damage the vehicle in any manner during installation. When routing fuel lines **DO NOT** place the hose in any location where damage may occur to the hose or vehicle. Avoid any contact with moving parts, areas of high temperature, brake lines, fuel lines, muffler, catalytic converter, or sharp objects.

DO NOT exceed your vehicle's weight limit. The console with waste tank and accessories weights approximately 800 lbs. Make certain to account for any additional accessories in your weight and balance calculations. Make certain that the vehicle has the correct axle rating. This will prevent unsafe vehicle driving conditions.

We require high-back seats on all vehicles in which units are to be installed for head and neck protection. We recommend using a metal partition between the seats and equipment.

DO NOT operate this unit without the water supply attachment and turned on. The water pump and other vital components may be seriously damaged if this unit is permitted to operate dry without water.

DO NOT operate this unit without the filter installed in the waste tank.
Keep your vehicle work area clean. Wands, stair tools, and other accessories must be securely fastened before driving the vehicle.

All high pressure hoses must be rated for 3000 PSI at 250 deg F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.

Make certain that you receive complete training by the distributor from whom you purchased this unit.

This unit uses high pressure and temperature. Improper or irresponsible use may result in serious injury.

Do not modify this unit in any manner. Improper modification can cause severe personal injury or fatality.

TECHNICAL SPECIFICATIONS

ITEM	DIMENSION/CAPACITY
Engine speed	1450 rpm (high speed) Water Pump ON
Water pump rpm	850 rpm
Vacuum pump rpm	2850 rpm
Water flow rate	4 GPM (maximum)
Water pump pressure	1000 PSI (maximum)
Vacuum relief valve	14" Hg/45 - 12" Hg/47
Waste tank capacity	100 gallons
Console weight (with waste tank)	500 lbs.

JET SIZING:
Recommended **floor tool** tip sizing not exceed a total of ".045". Using larger jet sizes on your cleaning unit may reduce cleaning temperatures.

Example: **Dual-jet wand uses two 11001.5 jets** (110 deg spray angle w/ 01.5 orifice).
015 x 2 = 03
Quad-jet wand uses four 9501 jets (95 deg spray angle w/ 1.0 orifice)
01 x 4 = 04

Upholstery tool jet size: **80015**
Stair tool jet size: **9502**

GENERAL INFORMATION

The Cleanco Compact Truckmount has been designed for the professional cleaner who demands a high performance-cleaning unit. Dependable performance is the guiding principal in the design and construction of the Cleanco Compact. Although the Cleanco Compacts are designed with simplicity in mind, this truckmounted carpet cleaning plant has many functions to perform simultaneously.

- Engine has to run at a continuous RPM. (Van Engine 1450 RPM)
- High Pressure water pump provides steady pressure at the proper flow for cleaning.
- Vacuum Blower has to pull air and soiled water back from the site.
- Cleaning solution has to be injected into the water flow at the right concentration.
- Heating system must deliver and maintain proper heat.
- The vacuum recovery tank stores soiled water for proper disposal.

This manual contains operation instructions as well as information required for proper maintenance, adjustments, and repair of this unit. To assist with proper diagnosis of a problem, a general troubleshooting has been included for your convenience.

LOCAL WATER CONDITIONS

The quality of water varies greatly throughout North America. This can influence the reliability and efficiency of your equipment. Many areas have an excess of minerals in the water, which result in what is known as hard water. These minerals tend to adhere to the inside of heat exchangers and other parts of the machines causing damage and loss of cleaning effectiveness.

Cleaning effectiveness and equipment life is increased when water softeners are used in hard water areas. The low cost of water softeners is more than made up for the increased life of machine parts and cleaning efficiency.

WASTE WATER DISPOSAL

There are laws throughout North America that prohibit the dumping of soiled water from carpet cleaning equipment in any place but a sanitary treatment system.

The water recovered into your unit's recovery tank contains materials such as detergent residue and many different soil contaminants removed from the carpet you have cleaned. These materials must be processed before they are safe to re-enter our streams, rivers and reservoirs.

AS PER FEDERAL, STATE AND LOCAL LAWS, DO NOT DISPOSE OF WASTE WATER INTO STORM DRAINS, GUTTERS, STREAMS, RESERVOIRS, ETC.

CLEANING SOLUTIONS & CLEANING

Your Cleanco Compact has been designed with the latest technology to produce the highest quality cleaning results possible. However it is only one of many tools of the carpet cleaning trade, and can produce only as good as the person operating it. There are no short cuts to quality. It takes time, cleaning knowledge, and the proper use of quality cleaning solutions.

Cleanco recommends that you follow label directions of all cleaning solutions, to obtain quality results and for safety. The improper use of cleaning solutions in your Cleanco Compact can cause serious damage to the plumbing system, high-pressure pump, and heat exchangers. (Cleanco does not recommend running products through your unit such as solvents, or grease removers with high concentrations of solvents).

Cleanco Cleaning Products endorses the IICRC Standards for Carpet Cleaning, which outlines proper cleaning procedures for all types of carpet and all kinds of cleaning systems. We encourage Cleanco owners to acquire a copy of these standards from your distributor and make yourself familiar with them. In brief, the standards specify that all carpet must be dry vacuumed, preconditioned, rinsed, and dried, in order to be properly cleaned.

CLEANING WAND PROCEDURE

To have a quality cleaning result, correct wand movement is of the utmost importance. Failure to take time and extra care can result in an unhappy client.

Always move the cleaning wand in a smooth forward and backward motion. Apply slight pressure on the forward stroke while injecting cleaning solution onto the carpet. Then on the backstroke towards yourself again apply slight pressure on the wand and inject and vacuum cleaning solution. Continue this method over-lapping each forward and backstroke, for about a three to four foot square area. Once the three square foot area has been completed, return back over the same area-utilizing vacuum only. Moving across then clean and vacuum the next three to four square feet and again repeating the extra vacuum pass. A good rule to remember is for every one wet pass, two dry (vacuum) passes are required. Failure to adopt good wanding procedures can result in streaking, over wetting, browning and longer drying times. Over wetting not only leaves a bad impression with your client but may also require an extra trip back to correct annoying problems such as browning. There are several things that could cause over wetting:

1. Not enough vacuum strokes, or incorrect wanding procedures.
2. Clogged vacuum blower filter.
3. Clogged lint basket filter.
4. Vacuum tank not sealed properly.
5. Obstruction in the vacuum hose, or kink in the vacuum hose.
6. Vacuum tank drain valve partially open.
7. Cleaning a heavily foam-saturated carpet without defoamer.

OPERATING INSTRUCTIONS

NOTE: Before operating the unit, make sure you are in a well-ventilated area. Exhaust fumes from the vehicle contain carbon monoxide and are hazardous to your health and your client's health. Do not operate the unit or the vehicle near any building doorways, windows, or openings of any kind.

1. Check your fuel gauge to ensure you have enough fuel for the job.
2. Check to make sure you have an adequate amount of fresh water in your fresh water tank to complete the entire job. If not, fill fresh water tank prior to starting the job.
3. Check your chemical jug to ensure that you have enough concentrated solution for the required job. If not, mix and fill the chemical jug with the desired cleaning solution.
4. Connect all hoses required. When connecting hoses start from the furthest point to be cleaned and work back towards the unit. This will ensure that you have the proper length required. Once at the Cleanco unit, connect the high-pressure hose to the quick discount on the front panel. Then repeat the same process with the vacuum hose and connect it to the vacuum port on top of the recovery tank.

START UP

1. Make sure the van is in the park position and the emergency brake is set.
2. With the van engine running, turn the main power switch to UPHOLSTERY or CARPET MODE depending on the work you are about to do.
3. Connect the fill (primer) hose to the second high pressure quick connect on the instrument panel, and place the open end in the second vacuum port.
4. Turn on the high pressure pump switch to the "ON" position. (Water will start to flow through the fill (primer) hose into the recovery tank.)
5. Adjust the chemical metering ystem by turning the chemical metering knob counter clock wise until the float ball in the chemical meter sits at 2 or 3 GPH.

6. Turn the pump switch to the “OFF” position and disconnect the fill (primer) hose.
7. Turn the pump switch to the “ON” position and check the pressure setting on the high pressure gauge. Standard carpet cleaning pressures should be between 300 and 500 psi. Upholstery pressures should be between 100 and 200 psi.
8. Connect the vacuum and the male end of the pressure hose to the carpet wand or tool being used.
9. You are now ready to start cleaning.

NOTE: The machine will automatically shut down when it reaches full capacity due to the high level float switch located inside the recovery tank. When this occurs, empty the recovery tank at an approved disposal site. To save time on emptying recovery tanks Cleanco recommends that you have a Cleanco C.A.D. (Cleanco Auto Drain) installed on your recovery tank.

SHUT DOWN

1. Lay vacuum hoses out in order for all moisture to be removed from hoses. This prevents spillage of any soiled water in your vehicle when storing hoses.
2. Turn the MAIN POWER SWITCH to the “OFF” position.
3. Turn the high pressure pump switch to the “OFF” position.
4. Disconnect all vacuum and high pressure hose and place them in the van. Also place the carpet wand and any tools that were on the job site into the van.
5. Remove the lift out lint basket, clean, and replace the lint basket back into the recovery tank.
6. Drain recovery tank at an approved disposal site.

DE-FLOODING OPERATIONS

De-flooding operations involve removal of water from carpet and flooring. This differs from normal cleaning operations in that no water or solution is required. A Cleanco Auto Drain is recommended for all deflooding operations due to the large amount of water removal often required.

1. Turn the MAIN POWER switch to the “CARPET MODE”.

2. Leave pump switch “OFF” position.

FREEZE GUARD PROCEDURE

1. Drain recovery and fresh water tanks.
2. Remove chemical jug and store in a heated area.
3. Remove hose from fresh water tank and insert into a container of window washer antifreeze along with the chemical feed hose.
4. Turn chemical flow meter knob to the on position.
5. Attach the fill (primer) hose to the front panel high pressure quick connect and place other end into an empty pail.
6. Turn the unit switch and pump switch to the on position.
7. Open the ball valve on the fill (primer) hose.
8. Chemical flow meter will begin to draw antifreeze into the chemical injection system, continue until all water is evacuated and antifreeze is present in the flow being expelled into the pail.
9. Close the fill (primer) hose ball valve for approximately 10 seconds. This allows antifreeze to circulate through the bypass system. Then open the fill (primer) hose ball valve and evacuate the remainder of the water until antifreeze is present.
10. Turn off unit and pump switch.
11. Replace hose on fresh water tank and remove fill (primer) hose.
12. The use of a 12 volt air compressor for connecting to all cleaning tools and high pressure hoses to evacuate water from lines and valves.
13. Remember to reclaim the antifreeze upon start up.

COMPACT WATER FLOW SYSTEM

The Compact water flow system has been design to be simple and trouble free. The incoming water flows from the fresh water tank first through the incoming water filter, then through the chemical injector. As the

water passes through the chemical injector, it automatically picks up the predetermined quantity of cleaning solution.

The predetermined quantity of cleaning solution is determined by the chemical flow meter located on the front panel. With this advance chemical injector, the chemical flow is injected only when there is a demand for water.

Once the water has been injected with the correct amount of chemical it then passes through the high pressure pump, where it is pressurized. After passing through the high pressure pump the pressure is then control by the BPR (Balanced Pressure Regulator), which is fully adjustable from the front panel.

After the water flow exits the BPR (Balanced Pressure Regulator), it then passes through the dual reverse flow heat exchanger where the water is heated to the preset temperature, which is determined by the adjustable temperature control knob on the front panel.

The water then exits the heat exchangers and continues through the plumbing system to the high pressure quick connects located on the front panel.

NOTE: The water flow plumbing system may need to be flushed with vinegar periodically to prevent abnormal chemical or hard water build-up. This can be done by removing the clear hose from the chemical jug and inserting it into a 1 liter (quart) container of vinegar. Then open the chemical flow meter to the setting of 10. With the unit running spray the wand until the 1 litre (quart) of vinegar is empty. Then repeat the process with 1 litre (quart) of water to flush the vinegar out of the lines. If you are in an area with extreme hard water it is suggested to use Coil Cleaner and flush entire water system on a regular basis. For information on how to use Coil Cleaner, contact your nearest Cleanco distributor.

HIGH PRESSURE PUMP

The Compact 45 & 47 are equipped with a state of the art Cat plunger pump. Cat pumps are built to last, with three ceramic plungers, stainless steel valves and oil-cooled cam-shaft system.

With the Cat pump you have the ability of performing carpet cleaning and power washing, with pressure output ranging from 30 psi to 1000 psi. If 1000 psi is exceeded this can cause damage to the packings and retaining seals in the pump.

Your Cleanco Distributor will preset your Compact unit's pump at a pressure rating between 300 psi and 500 psi during installation. Cleanco has found this pressure range to be the optimal setting for carpet cleaning. When cleaning upholstery a simple adjustment of the BPR (Balanced Pressure Regulator) on the front panel will lower your pressure to 200 psi, which is recommended for upholstery cleaning.

When power washing you must remember that your Cleanco Compact is set up for carpet cleaning. Even though your Triplex pump has maximum rating of 2500 psi, this pump is set up for carpet cleaning will give you maximum 1000 psi for power washing. With 1000 psi and the high heat from the Cleanco heat exchangers it makes power washing simple.

VACUUM SYSTEM

The vacuum system of the Compact is a Roots Whispair Universal DSL 45 or 47 positive displacement rotary lobe blower. This high performance blower provides incredible air flow and water lift making sure carpets are left as dry as possible. The blower is factory set for maximum efficiency and longevity. The performance and life of the blower greatly depends on the care and proper maintenance it receives.

Due to the close tolerances of the internal lobes and the housing of the blower, solid objects entering the inlet of the blower can damage the interior.
To prevent this, Cleanco installs stainless steel filter screens on the vacuum inlet inside the vacuum recovery tank. This stainless steel filters should be removed daily and cleaned. When reinstalling the filter only thread filter on until finger tight. The lint basket should be removed and cleaned after every job. If lint basket is not

clean, it will affect the performance of your machine.
For further information on the Roots Vacuum Blower refer to the enclosed Roots Universal Blower Manual.

ELECTRICAL SYSTEM

The Cleanco Compact electrical system has been specifically designed with simplicity in mind. One complete wiring harness that connects all operations of the unit. This harness is complete with specially designed plug ends, which enable service centers easy front panel removal if necessary. An inline fuse located near the van battery protects the system. All wiring is coated to protect against corrosion from moisture or water spillage.

NOTE: Whenever working on wiring system power side of van battery should be disconnected for safety.

COMPACT 45 & 47 HEAT EXCHANGERS

The Cleanco Compact “MAXI HEAT” heat exchangers are custom built by Cleanco to meet our exacting standards for performance. The heat transfer is quick and efficient, with no potentially damaging heat swings or peaks. The Cleanco Compact heat exchanger is designed with a burst rating pressure of 9000 psi, and operating pressures up to 3000 psi. The unique dual reverse flow exchanger system gets the most heat from the cooling system of your van, using a reverse flow design to maximize heat transfer delivering the highest heat to flow ratio in the industry. The exchangers require little maintenance other than an occasional coil flush to remove hard water residues and scale.

COMPACT 45 & 47 PTO SYSTEM

The power take off shaft (PTO), is a precision engineered and balanced shaft that transfers power from the van’s engine to the Compact unit, which drives the vacuum and high pressure pump. An outer casing with five permanently lubricated bearings protects the shaft. These bearings are designed to withstand extremes of heat and friction without breaking down. The pto shaft is activated by a single switch located on the front instrument panel. The single switch engages an electric clutch at the front of the shaft in the engine compartment. The shaft is firmly mounted in the engine compartment by the front pto mounting bracket and at the rear of the shaft by the rear pto mounting bracket which is mounted to the base plate of the unit.

COMPACT FRONT INSTRUMENT PANEL

The instrument panel of the Compact puts everything at your fingertips. Complete with vacuum gauge, hour meter, pressure gauge, water temperature gauge and tachometer to monitor all internal workings of the Compact. All electrical is controlled by rocker switches, unit power, fast idle, high pressure pump clutch, interior lights, C.A.D. (Cleanco Auto Drain) and the accessories switch. The BPR (Balanced Pressure Regulator) and Chemical Flow-Meter are both located at the center of the front panel for easy access. To the right side of the panel is the blower lube port and the oil level sight tubes. At the lower left side of the panel are the two high pressure quick disconnects and the C.A.D. (Cleanco Auto Drain). The unique design feature of the Compact front panel, allows complete removal in approximately 90 seconds giving you complete access to the major components.

COMPACT RECOVERY TANK

The recovery tank of the Cleanco Compact incorporates many unique features to protect your equipment, and save you time. The tank is made from 3/16^{ths} powdered coated marine aluminum and contains several baffles to insure strength and durability. The recovery tank holds 100 U.S. gallons of soiled water solution, giving you longer cleaning intervals between dumping. The safety and convenience features built into the recovery tank include a high water shut-off switch, a built-in lint basket, sloped tank bottom, stainless steel blower protection filters, and an inline vacuum breaker. The high water shut-off is located at

the highest point in the recovery tank, giving you full usage of the tanks capacity. The high water shut-off cuts the power to the unit when the tank is full, protecting the vacuum blower from damage. The lint basket prolongs the life of the air filtration system, and makes draining soiled water easier with less clogging and debris. The stainless steel blower protection filters guard against any small debris entering into the blower chamber which could damage the blower itself. The inline vacuum breaker adds years to the vacuum blowers life by reducing stress caused plugged filters and limited air intake. The recovery tank also has two access lids for easy access to the lint basket and the stainless steel blower protection filters. These filters require regular cleaning on a daily basis as a minimum. To finish off the recovery tank Cleanco added an integrated storage shelf, giving the operator added space for specialty tools that may be required at the cleaning site.

MAINTENANCE

To avoid costly repairs and downtime, it is imperative to develop and practice good maintenance procedures. These procedures must be preformed on a daily, weekly, monthly and quarterly schedule.

As part of your Cleanco package you receive a **Cleanco Maintenance Booklet.** This booklet provides you with a convenient format for recording the required maintenance of your Cleanco unit and van. You are required to perform all maintenance items in the Maintenance Schedule and record that you have done so in this booklet as part of your Cleanco Warranty. It is your responsibility to keep a copy of all repair orders and receipts that relate to your Cleanco unit and Van. These records of services and purchases will be required to substantiate proper maintenance to your Cleanco unit and Van for any warranty claim.

DAILY

- Check van engine oil.
- Check van engine coolant level.
- Check high-pressure pump oil level.
- Check vacuum blower oil level.
- Clean vacuum tank lint basket. **(Should be cleaned after every job)**
- Clean the stainless steel blower protection filters.
- Lubricate blower with Cleanco's blower lubricant.
- Winterize system if necessary.

WEEKLY

- Check engine air cleaner filter. (clean as necessary)
- Check Front drive belts. (adjust if necessary)
- Check blower belts. (adjust if necessary)
- Check high-pressure pump belt. (adjust if necessary)
- Clean in-coming water filter.
- Flush chemical system with 50/50 mixture of vinegar and water.
- Inspect unit for loose wires, oil leaks, and water leaks.
- Check engine RPM with unit running at fast idle. (setting 1450 RPM under load)

- Blower Speed. (actual reading)
- Vacuum Gauge. (actual reading)
- Temperature Gauge. (actual reading)
- Hour Meter. (actual reading)
- Clean wand and inspect for clogged jets.
- Clean recovery tank thoroughly with high pressure water.

MONTHLY

- Change van engine oil.
- Check van transmission oil level.
- Check van coolant level.
- Check engine air cleaner filter. (clean as necessary)

SIX MONTHS SERVICE

- Change oil in high-pressure pump.
- Change oil in vacuum blower.
- Flush entire water flow system. (coil flush if necessary)
- Check that all nuts and bolts are tight.

ANNUAL MAINTENANCE

Change the coolant and flush the coolant system completely.

AS REQUIRED / COIL FLUSH

If your area has hard water you may see evidence of hard water deposits form in the water system, or on the quick connects. If scale is present, the water system should be flushed with Coil Cleaner. This procedure may have to be increased to a monthly interval if heavy built-up is present. For information on flushing coils contact your nearest Cleanco distributor.
Over all machine maintenance and appearance is very important. It represents your company's professional appearance and is how you make your living. A clean well maintained machine will give you years of reliable performance. Maintenance, troubleshooting, and repair is much easier on a clean well maintained unit. Regular cleaning and maintenance will give you the opportunity to spot any potential problems normally before they occur.

It is important that you follow and record the maintenance on your Cleanco unit and van according to the Cleanco Maintenance Booklet to insure complete warranty coverage.

TROUBLESHOOTING GUIDELINES

Loss of Vacuum:

- Ensure recovery tank drain valve is closed.
- Ensure recovery tank access lids are on properly.
- Check recovery tank lid gaskets are in good condition.
- Check stainless steel blower protection filter, clean if required.
- Check vacuum tank lint basket, clean if required.
- Check for blockage in cleaning tool or vacuum hose.
- Check vacuum hoses for kinks, and good connections.
- Check vacuum hose between blower and recovery tank.
- Check belt tension between blower and pto shaft.
- Check belt tension at front of pto shaft.

Loss of Water Pressure

- Check fresh water tank for adequate water level, if connected to direct feed water tap ensure tap is in the on position.
- Inlet water feed line collapsed or clogged.
- Inline water filter strainer clogged or damaged.
- Air leak on the inlet water line from water source to high pressure pump.
- Check BPR (Balanced Pressure Regulator) for blockage and proper setting.
- Check for lose pump belt.

Water Pulsation

- Foreign material in pump valves.
- Air leak on the inlet water supply line.
- Air leak on chemical metering line.
- Inadequate water supply.
- Foreign material in BPR (Balanced Pressure Regulator).

No Hot Water

- Check temperature control valve setting, ensure its turned to hot.
- Check engine coolant level, top up if required.
- Flush heat exchangers with approved coil cleaner.
- Possible air lock in water flow system, make sure coolant level is at proper level then open pet-cock valves located on the heat exchangers and bleed air from heat exchangers, then close pet-cock valves. If problems persist contact your nearest Cleanco service center.

No Chemical Feed

- Check chemical jug level and top up if necessary.
- Check chemical feed hose for leaks or cracks.
- Check chemical feed check valve located on the end of the chemical feed hose in the chemical jug for blockages.
- Check chemical flow-meter for blockages.
- Check chemical feed hose from front panel to chemical injector tee for leaks or cracks.

No Unit Power

- Check in-line fuse located at the vehicle battery.
- Check to ensure recovery tank is not full.

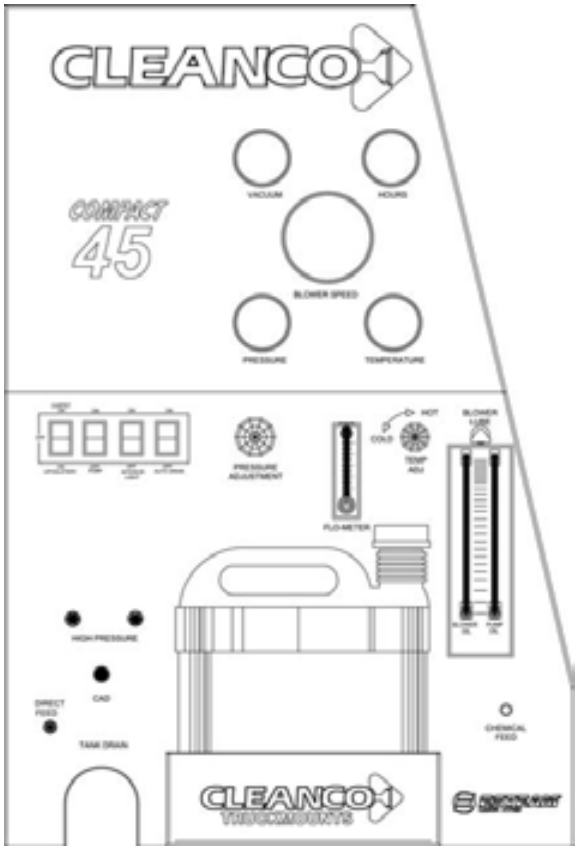
- Check recovery tank shut-off switch for proper operation.
- Check front pto clutch power and grounding wires.
- Check unit power rocker switch for lose wires.

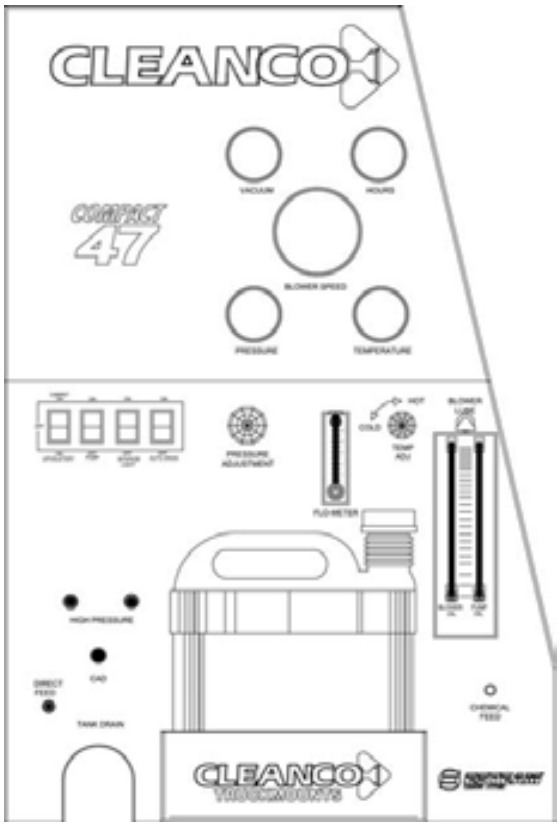
Unit Will Not Idle Up

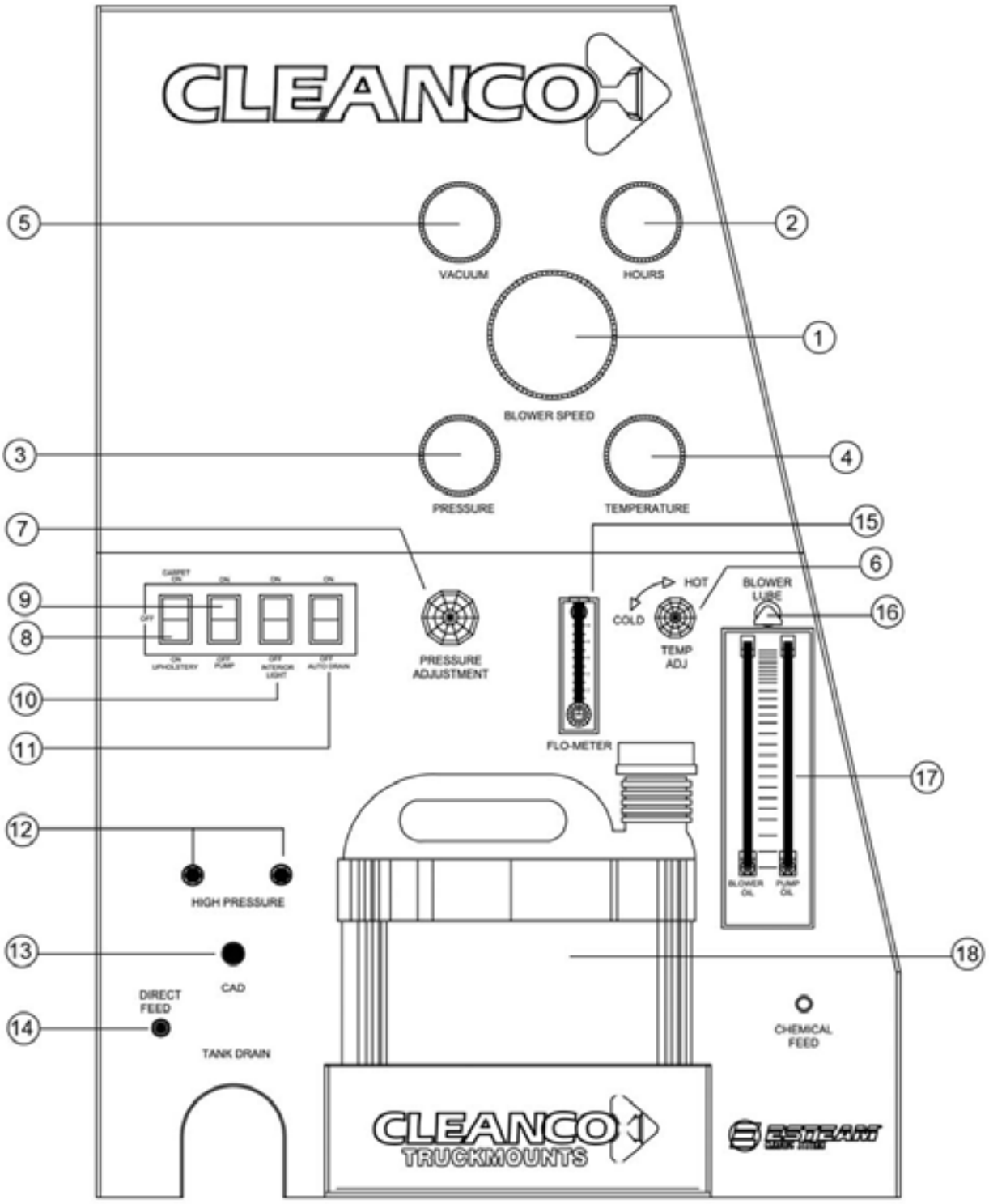
- Check wires leading to the idle up servo.
- Check ground wire on the idle up servo.
- Check vacuum hose for cracks that lead from the idle up servo to the vehicle's vacuum line.
- GM and FORD late model vehicles (2004+) will be equipped with a throttle module. See Dealer if this unit malfunctions.

Unit Shuts Down Unexpectedly

- Check recovery tanks level and drain if required.
- Check in-line fuse located at the vehicle battery.
- Check recovery tank shut-off switch to ensure proper function.
- Check pto clutch power and grounding wires.


CLEANCO
COMPACT
45
VACUUM
HOURS
BLOWER SPEED
PRESSURE
TEMPERATURE
PRESSURE ADJUSTMENT
FLO-METER
HOT
COLD
HIGH PRESSURE
CAD
DIRECT FEED
TANK DRAIN
CHEMICAL FEED
CLEANCO


CLEANCO
COMPACT
47
VACUUM
HOURS
BLOWER SPEED
PRESSURE
TEMPERATURE
PRESSURE ADJUSTMENT
FLO-METER
HOT
COLD
HIGH PRESSURE
CAD
DIRECT FEED
TANK DRAIN
CHEMICAL FEED
CLEANCO


CLEANCO
5
VACUUM
HOURS
2
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BLOWER SPEED
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PRESSURE
TEMPERATURE
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PRESSURE ADJUSTMENT
HOT
COLD
TEMP ADJ
BLOWER LUBE
16
10
11
FLO-METER
17
12
HIGH PRESSURE
13
CAD
18
DIRECT FEED
14
TANK DRAIN
CHEMICAL FEED
CLEANCO
TRUCKMOUNTS

OPERATION

1. Blower Speed
The Blower Speed shows the rpm of the Blower.

2. Hourmeter
The hour meter records the number of hours the unit has run. This serves as a time recorder for servicing the machine and van.

3. Solution Pressure Gauge
This gauge registers the amount of pressure in the system.

4. Solution Temperature Gauge
This gauge measures the temperature of the cleaning solution as it exits the machine.

5. Vacuum Gauge
This gauge indicates in inches of mercury how much the vacuum system is producing at any given time.

6. Solution Temperature Control
This valve allows the operator to control the solution temperature by adjusting the valve from cold to hot.

7. Pressure Control Regulator
The pressure regulator sets the pressure of the solution system. This spring loaded valve can be adjusted up or down setting the pressure of the unit by turning the knob clockwise. The pressure is increased or reduced by turning the valve counter clockwise. This valve must be maintained in accordance with this manual maintenance table.

8. Main Power Switch
The switch serves to energize the magnetic clutch to turn the P.T.O.

9. Pump Clutch Switch
This switch serves to energize the magnetic clutch to turn the water pump on or off.

10. Interior Light Switch
This switch controls the spot lights located in the cargo area.

11. Auto Drain Switch
This switch controls the (Optional) auxiliary pump to drain the waste collection tank automatically. A float switch located inside the tank automatically turns on and off when the solution level reaches a certain level.

12. High Pressure Outlets
The high pressure solution outlets are the connecting point s for the high pressure hoses. These outlets have quick connects that allow hoses to be plugged into the unit.

13. C.A.D. Port
This port is used when the (Optional) Auto Drain is installed on the unit. It will accept standard garden hoses. Waste tank solution should only be dumped according to Local, State, Provincial, and Federal Laws.

14. Direct Feed
This port is used when the (Optional) Water Box is being used instead of an “on board tank”.

15. Flow Meter
The flow meter is a gauge to indicate how much liquid detergent is being introduced to the water system. Turning the knob on the flow meter clockwise can increase the quantity.

16. Blower Lube Port
The oil cup allows lubricant spray to reach the lobes of the vacuum pump.

17. Oil View Lines
The oil view lines indicate levels of oil in both the vacuum pump and water pump. They are “indicators only”.

18. Detergent Bottle
The detergent bottle holds the concentrated detergent used in the operation of cleaning.

OPERATION

Water Pumping and Heat Transfer System:

Cold water enters the panel through the water inlet. When the water tank is full the valve will automatically shut off.

Water then flows from the water tank, through a strainer, into the water pump where chemical is introduced at this point. Then it is pumped to the pressure regulator that provides and maintains the desired pressure setting.

A certain amount of water is by-passed from the pressure regulator due to over pumping capacity of the water pump. Water that is not called for in the cleaning process is channeled to the by-pass coil in the recovery tank then flows to the inlet side of the pump to be circulated again.

The heating stage occurs when the water leaving the pressure regulator and directed to the first of two heat exchangers. Heat from the vehicle engine coolant is exchanged to the cleaning solution spiraled copper tubing. This allows the engine coolant to travel in a counter rotating direction to the cleaning water during the exchange process creating a very efficient transfer of heat out of the engine and into the cleaning solution.

The hot solution then exits the second heat exchanger where it enters the outlet manifold. The manifold serves as a sensing point and connection for the high-pressure hoses.

Finally, the cleaning solution then passes through pressure hoses and is distributed by the cleaning tool to a surface that is being cleaned, completing the water pumping and heating cycle of the cleaning unit.

Optional P.T.I.

With the Optional Post Thermal Increase, the cleaning solution goes to a second stage of plumbing and heating which takes place in the heater core located just after the vacuum pump. This is the hottest point of exhaust air coming from the vacuum pump. The hot exhaust air is forced through the post heat core, creating the second stage of heat transfer to the cleaning solution.

Required Maintenance of P.T.I.

Annual inspection of the fins inside the P.T.I. is a requirement do to the potential folding over of the fins or buid up of debris, lint, dirt etc. This will cause excessive stress on the driver line including the blower, PTO shaft and PTO clutch. The blower must be removed to see the possible results of the wear and tear on the fins. Cleaco would recommend this procedure be done by a Qualified Service Technician.

Heat Max P.T.I Operating Instructions:

Overview

The “Heat Max P.T.I.” is designed to transfer the exhaust heat generated by the vacuum blower, to the cleaning solution as the final heating stage. To fully understand the heat transfer system of the Cleanco Compact the following steps occur.

Before the P.T.I. will efficiently transfer heat to the cleaning solution, the blower must be brought up to temperature. This is accomplished when the vehicle coolant system is first brought up to operating temperature either through idling or driving to the job site. Then the unit must be turned on to high idle with the vacuum port of the recovery tank closed off with the plug on the inlet barb. The operating temperature of the P.T.I. will be available in about ten minutes of running unit. The P.T.I. will take much longer to reach operating temperature if this procedure is not done and in fact will cool the water until the blower can reach the desired transfer heat rate.

Step 1

The water flows from the fresh water tank through a strainer, into the water pump where it is pumped to the pressure regulator providing constant desired pressure.

Step 2

The next stage of water flow is to the heat exchangers (Dual or Quad), when water is called for in the cleaning process, it flows to the heat exchangers under pressure. Heat from the engine coolant is exchanged to the cleaning solution through a series of spiraled copper tubing. This allows the engine coolant to travel in a “reverse flow” direction to the cleaning solution creating a very efficient transfer of heat out of the engine and into the cleaning solution.

Step 3

The last stage of the heat exchange takes place in the “Heat Max P.T.I.” located under the baseplate. This is the hottest point of the exhaust from the vacuum blower which is forced through the “Heat Max P.T.I.”. The cleaning solution travels from the heat exchangers to the “Heat Max P.T.I” where it is channeled through a series of stainless steel tubing. The exhaust heat from the vacuum blower is transferred to the stainless steel tubing, boosting the temperature of the cleaning solution.

Step 4

The hot cleaning solution passes to the outlet manifold, this manifold serves as a temperature sensing point and connecting point for the high pressure solution hoses. The cleaning solution then passes through high pressure hoses and is distributed by the cleaning tool to the surface that is being cleaned.

OPERATION

Operating System

Step 1

Arriving at the job site, same routine applies: pre-inspection, precondition, run hoses and tools required into the site.

Step 2

Turn unit, pump and fast idle switches on, set chemical meter and enter the site to begin cleaning.

Step 3

Clean as normal using the recommended orifice sizes listed below for the wand and stair tool.

Step 4

It will take approximately 15 minutes of normal cleaning for the vacuum blower to generate desired temperatures of 230ºF - 240ºF. As the carpet wand vacuums the carpet it generates a “load” on the vacuum blower, this in turn then reaches and maintains optimum temperature for maximizing the “HEAT MAX P.T.I.” heat transfer.

⚠ WARNING:

. DO NOT FREEZE! UNIT IS IRREPARABLE IF FROZEN.

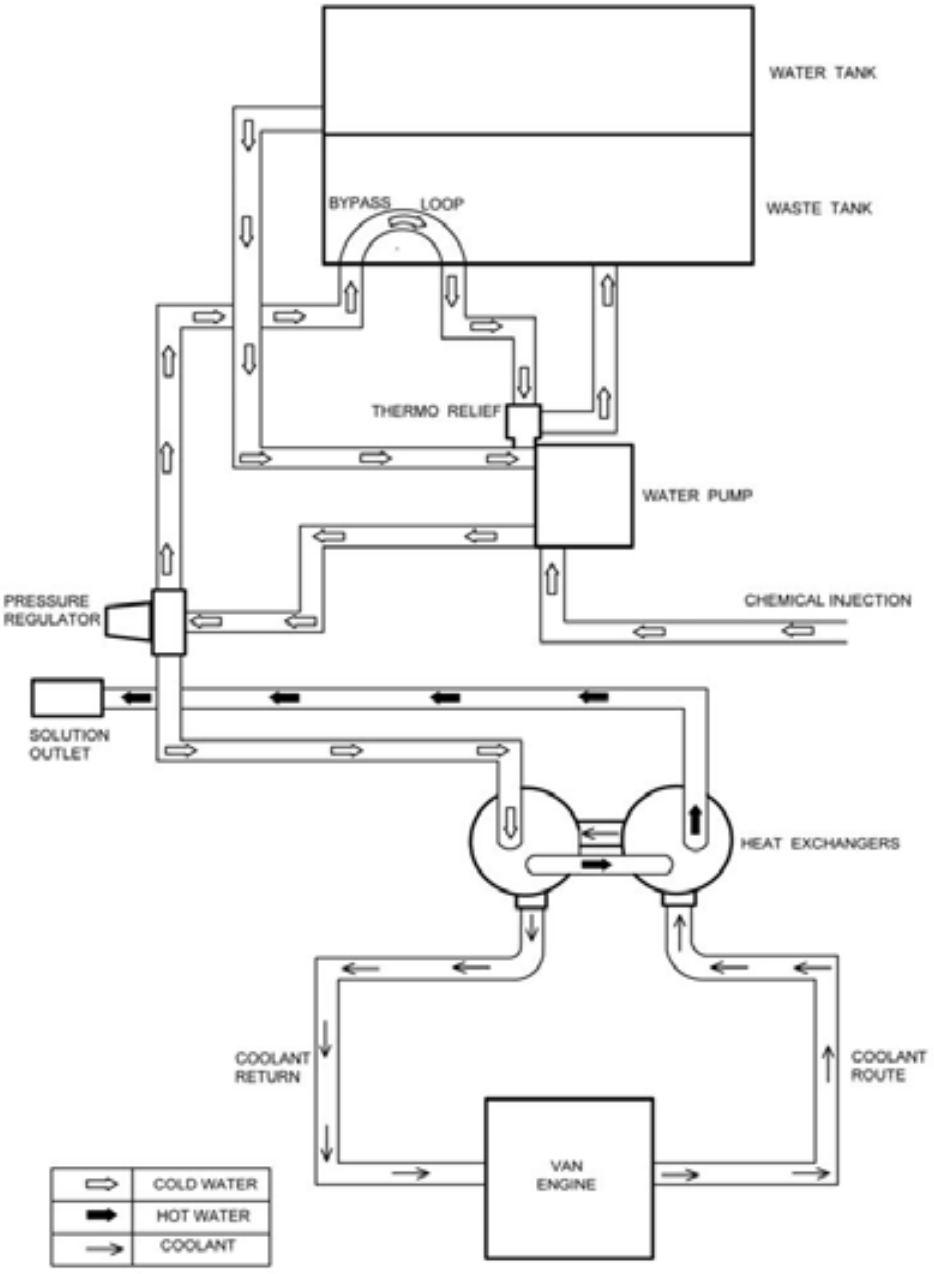
. HOTTER WATER TEMPERATURES WILL CAUSE PREMATURE DETERIORATION OF HIGH PRESSURE HOSE, VALVES, ORINGS, ETC.

JET SIZING

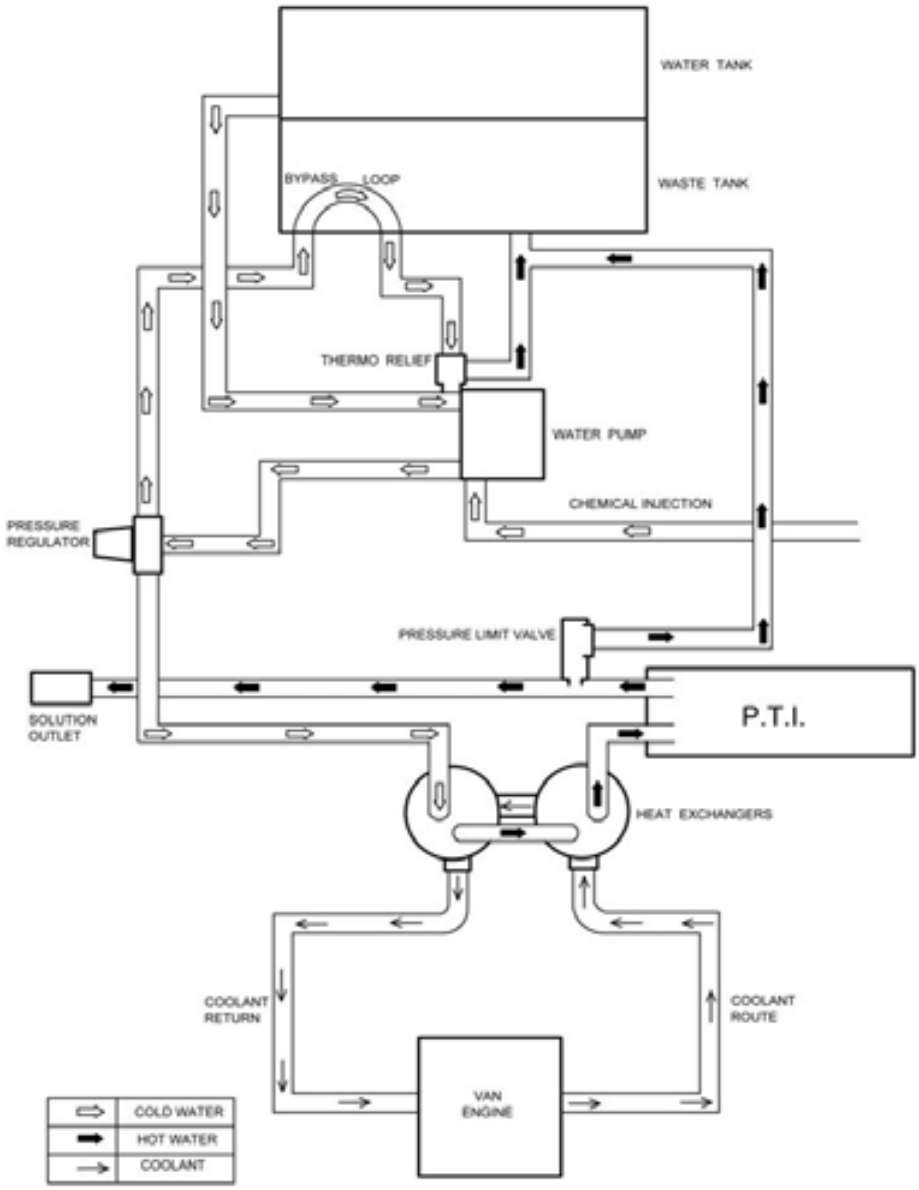
For maximum heat and overall unit performance, the recommended floor tool jet sizing not to exceed a total of “.045”. Using larger jet sizes on your cleaning unit may reduce cleaning temperatures.

Example: Dual-jet wand uses two 110015 jets (110º spray angle with 015 orifice).
015 x 2 = .03
Stair tool jet size: 11003

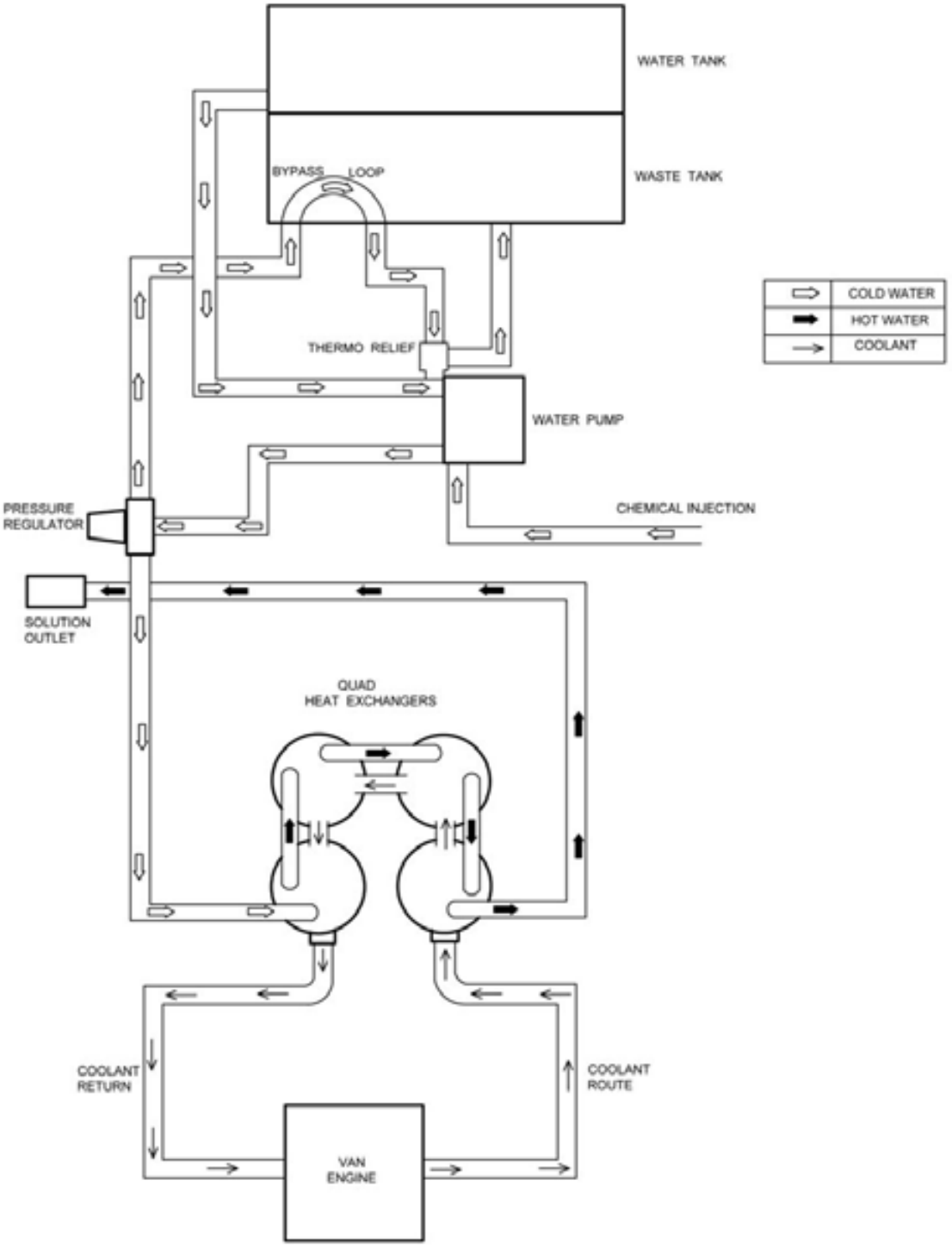
WATER PUMPING AND HEAT TRANSFER SYSTEM (DUAL HEAT EXCHANGER)



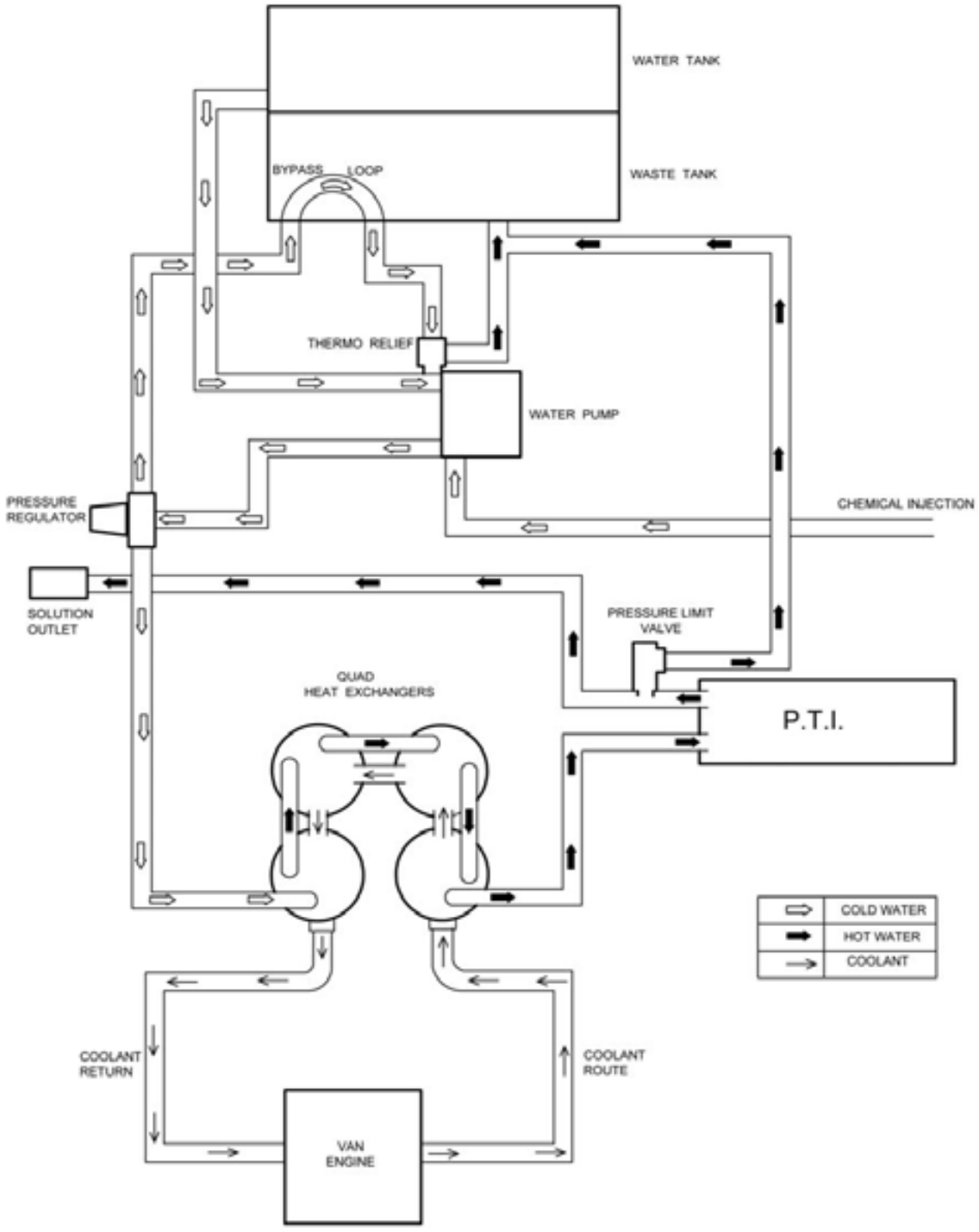
WATER PUMPING AND HEAT TRANSFER SYSTEM (DUAL HEAT EXCHANGER) WITH P.T.I. OPTIONAL



WATER PUMPING AND HEAT TRANSFER SYSTEM (QUAD HEAT EXCHANGER) OPTIONAL



WATER PUMPING AND HEAT TRANSFER SYSTEM (QUAD HEAT EXCHANGER) WITH P.T.I. OPTIONAL



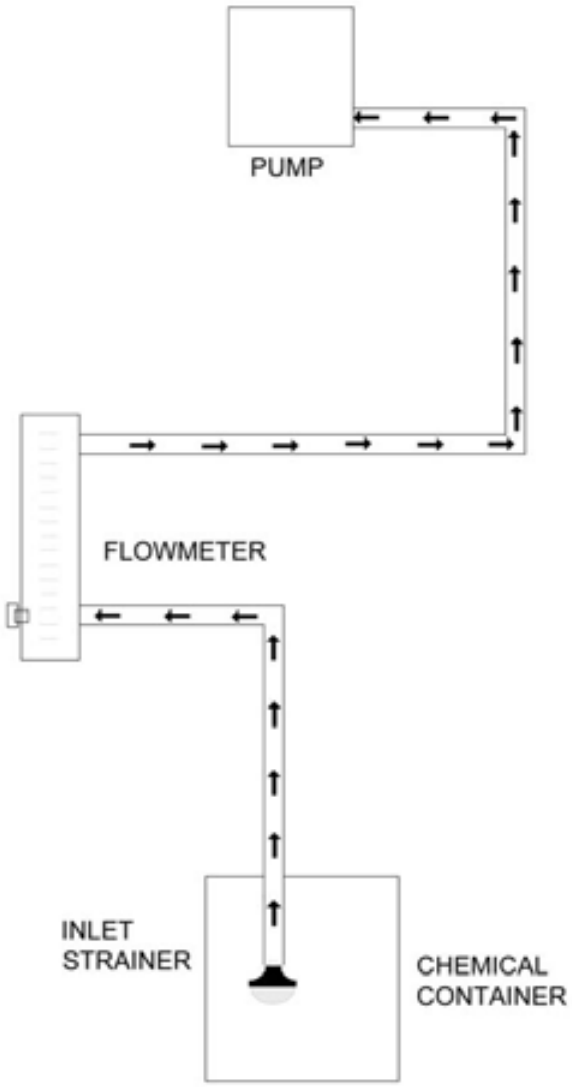
OPERATION

CHEMICAL INJECTION SYSTEM:

The chemical injection system utilizes the natural inlet draw of the high-pressure pump to move the chemical into the main pressure stream.

The chemical is picked up from the container and fed through the flow meter at a desired amount of chemical which is adjusted through the metering valve.

The chemical and water are mixed in the high-pressure pump and then forced through the heat exchangers and outlet manifold where then it is distributed to high-pressure hoses out to the cleaning tool.



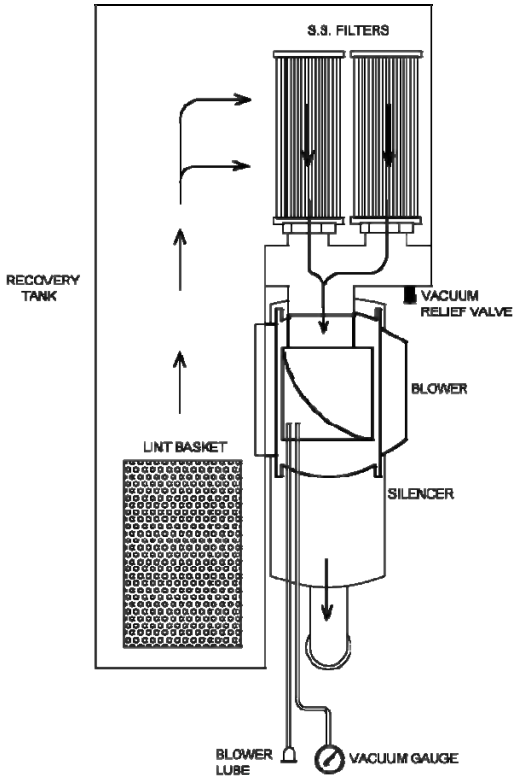
OPERATION

VACUUM SYSTEM

The PTO turning an air pump generates vacuum. The air is channeled in one side of the vacuum pump, compressed and discharged on the opposite side, creating airflow.

The movement of air is used to do the work necessary for the extraction process. A vacuum nozzle applied to the carpet surface removes moisture, dirt and spent chemicals. These elements are conveyed back to the waste tank using a series of changes in direction and velocity. The air is then filtered and rushes into the vacuum pump.

The vacuum pump compresses and heats the incoming air. The hot discharged air is forced down stream into a silencer for noise abatement. Finally the hot air is exhausted outside.



NOTE:
WITH THE OPTIONAL P.T.I., THE HOT DISCHARGED AIR IS FORCED THRU THE P.T.I. BEFORE BEING EXHAUSTED OUTSIDE.

VACUUM PUMP

Refer to the Vacuum Pump Operation and Service Manual for specific instructions.

Lubrication: We recommend that you use TERESSTIC 320 Synthetic Blower Lubricant in the vacuum pump for all operation temperatures. TERESSTIC 320 is formulated especially for positive displacement blower service to provide maximum blower protection at any temperature. One filling of TERESSTIC 320 will last many times longer than a premium mineral oil.

NOTE: TERESSTIC 320 is the oil which ESTEAM puts in the vacuum pump at the factory. Topping off or adding petroleum oil to synthetic oil is NOT recommended.

1. Check the oil level **daily** to assure the proper level. **PROPER LEVEL** cannot be overemphasized. Too little oil will ruin bearings and gears. Too much oil will cause overheating. Use the illustration as a guide when adding oil.

2. To prevent rust from building up inside the vacuum pump (if moisture exists) we have provided a lubrication cup on the front of the unit.

First run the unit at least **1 minute** to remove any moisture from the vacuum pump. Next, fill the lubrication cup with WD-40, or a similar lubricant, for **5 seconds** while the unit is running and the vacuum inlets are sealed. Do this at the end of **each working day.**

3. Drain, flush and replace oil **every 200 hours or yearly, whichever comes first.** Change oil more frequently if inspection so indicates. With TERRESSTIC 320 synthetic lubricant, perform the oil change maintenance **every 400 hours or every 2 years, whichever comes first.**

5. Vacuum pump lubrication is vital to performance of our pump. Failure to follow the maintenance schedule in the "Maintenance Schedule" can lead to permanent damage to your blower.

NOTE: Other recommended synthetic oils are, Mobil DTE AA, Exxon NUTO 320, Texaco Regal R & O 320, and Roots Synthetic Lubricant 320

MAINTENANCE

WATER PUMP

1. Check the crankcase oil level **daily** to assure the proper level. Use the illustration as a guide when checking the oil level. If the level has dropped, check for the source of leakage and repair.

2. Change the crankcase oil with Cat Pump Crankcase Oil, after the **first 50 hours** of operation. Drain and refill the crankcase oil with Cat Pump Crankcase Oil **every 500 hours** thereafter.

3. Other Cat approved oil equivalents are: Mobil DTE 16, Amoco Rykow 68, and Shell Tellus T68.

VACUUM INLET FILTERS (IN WASTE TANK)

1. The vacuum filters in the waste tank should be removed and cleaned **daily**. If this is done, the filters will last for a long period of time.

VACUUM RELIEF VALVE

While the unit is running at full RPM, block the air flow at the vacuum inlet connection and read the vacuum gauge. If adjustment is required, shut the unit down and adjust the vacuum relief valve locking nut tension. Start your unit and read the vacuum gauge. Repeat this process until the relief valve opens at 14" Hg on a Compact 45 and 12"Hg on a Compact 47.

VACUUM PUMP DRIVE BELTS

To tighten the vacuum pump belts:

1. Loosen the centre nut (left hand)that holds the tensioner to the tensioner bracket.

2. Roll the pump and blower belts off the blower pulley. Turn the tensioner down towards the floor and re-tighten the centre nut on the tensioner.

3. Roll the belts back onto the blower pulley. The centre line on the inside of the tensioner should be postioned between the second and third line on the outside of the tensioner.

NOTE: When adjusting belt tension, make certain that the PTO shaft and vacuum pump shaft remain parallel, and the belt tension is equal throughout the belt width.

4. After adjusting, check belt alignment with straight-edge.

Make certain that when you re-torque these screws, that you use a clockwise pattern and continue until proper torque is achieved.

TORQUE VALUES		
COMPONENT	INCH/LBS	FOOT/LBS
Rear PTO Hub	300	25
Vacuum Pump Hub	300	25

5. Check for pulley groove wear, clean belts and pulley grooves, check for worn belts, proper belt tension, and pulley alignment after the **first 25 hours** and then again at **100 hours.**

Check for belt ride in the groove.

MAINTENANCE

PRESSURE REGULATOR

Lubricate the o-rings and bullet **every 50 hours.** Use o-ring lubricant.

For the procedure, see the "General Service Adjustments" section in this manual for details.

VACUUM HOSES

To assure maximum hose life, we recommend that the hoses be washed out with clean water at the end of each **working day.**

HIGH PRESSURE HOSES

Inspect your high pressure hoses for wear after the **first 100 hours** of use. Inspect **every 25 hours thereafter.** If hoses show any signs of damage or impending rupture, **replace the hose.**

DO NOT attempt to repair high pressure hoses! Repairing high pressure hoses may result in severe burns and serious injury!

All high pressure hoses must be rated for 3000 PSI at 250 deg F. Thermoplastic hoses do not meet these specifications and should not be used. Severe burns and injury may result if the hoses do not meet these requirements.

OPTIONAL WASTE PUMP-OUT

At the end of each work day, make certain that you remove any debris or sediment which may be inside the waste pump by pumping fresh water through the pump.

ENGINE COOLANT REPLACEMENT

Annually the coolant in the Vehicle Engine should be replaced. This coolant is an integral part of the heating system and needs to be maintained as any other working part of the system. We recommend that this procedure be accomplished by the following steps.

DRAINING COOLANT:

1. Remove one end of Heater core "Y". Open Heat Exchanger Petcock's.

NOTE: Be sure that used coolant is collected in a proper container and disposed of in accordance with local laws.

REPLACING COOLANT:

1. Fill radiator with 60/40 anti-freeze water mix.

2. Start unit at idle.

3. As the unit warms up, maintain a full radiator with a 60/40 mix.

4. Open petcocks slightly on Heat Exchanger to allow any trapped air to escape. When coolant runs out of Heat Exchangers, close petcocks.

5. Fill radiator with 60/40 coolant mix.

6. Re-install radiator cap.

7. Shutdown unit.

Check radiator overflow bottle. Add coolant to proper "cold" level.

MAINTENANCE

WATER PUMP DRIVE BELT

To tighten the water pump belt:

1. Loosen the nuts which hold the water pump mount to base.

2. Adjust the position of the belt tension adjusting bolt until the proper belt tension is achieved. (1/2" deflection in the center of the belt, halfway between the pulleys).

3. While checking the alignment, tighten the nuts which hold the water pump mount to base.

WASTE TANK STRAINER BASKET

The strainer basket located inside the waste tank should be removed and cleaned whenever it is full of debris. This should be done at the end of each job.

WASTE TANK FLOAT VALVE

The float valve in the waste tank shuts the unit down once the waste tank becomes full. Check the float valve for debris at least once a month.

INLINE WATER FILTER

The filter is located on the inlet plumbing assembly of the pump. Clean this filter once a week.

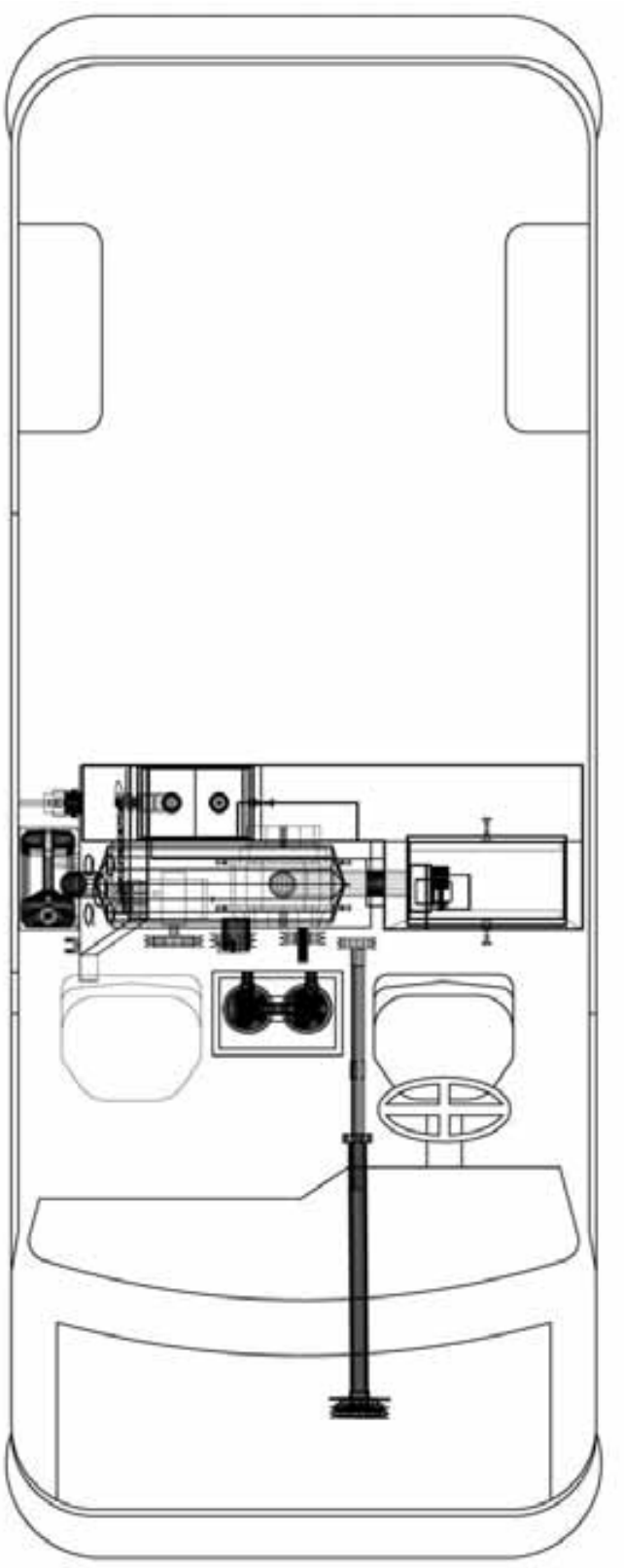
PROBLEM	CAUSE	SOLUTION
PTO will not engage	Recovery tank is full.	Drain recovery tank.
	Main power fuse is blown.	Replace fuse.
	Recovery tank switch is stuck or defective.	Examine switch replace if necessary.
	Front or rear belts broken.	Replace belts.
Engine speed will not increase	Recovery tank is full.	Drain recovery tank.
	Park brake not engaged	Engage park brake.
	Fast idle switch is off.	Turn switch on.
	Throttle Module	See dealer
Loss of water pump pressure. With the cleaning tool open, the water pressure gauge reads below the normal operating pressure.	Water supply is turned off or the float valve is stuck or improperly adjusted.	Turn the water supply on or up. Check for kinks in the water supply hose. Examine the float valve and adjust or replace.
	Water pump inlet supply line is plugged or drawing air.	Examine the water inlet filter inside the water box. Remove accumulated debris and replace if required. Check for suction leaks and loose clamps or fittings. Tighten any loose fittings or clamps. Replace any ruptured hose(s).
	Pressure regulator o-rings are dry.	Lubricate o-rings, using o-ring lubricant.
	Pressure regulator has worn o-rings.	Check o-rings. If necessary, replace.
	Pressure regulator is dirty, stuck open, or improperly adjusted.	Clean or repair regulator. Adjust to working pressure. Lubricate o-rings, using o-ring lubricant.
	Low pump volume. (Measure the amount of water being returned to the water box from the pressure regulator. It should fill a gallon container about every 17 seconds).	Examine the check valves, plunger cups, and cylinder head on the water pump. Repair, whenever required (refer to the water pump service manual).
	Defective water pressure gauge.	Replace gauge
	Orifice (spray nozzle) in the cleaning tool is worn, defective, or wrong size.	Replace nozzle or change nozzle size.
	Debris clogging water lines or water inlet disconnect.	Clean or replace as needed.
	Belts loose or broken.	Re-tension or replace as needed.
	Loss of pump prime.	Manually prime water pump.

MAINTENANCE

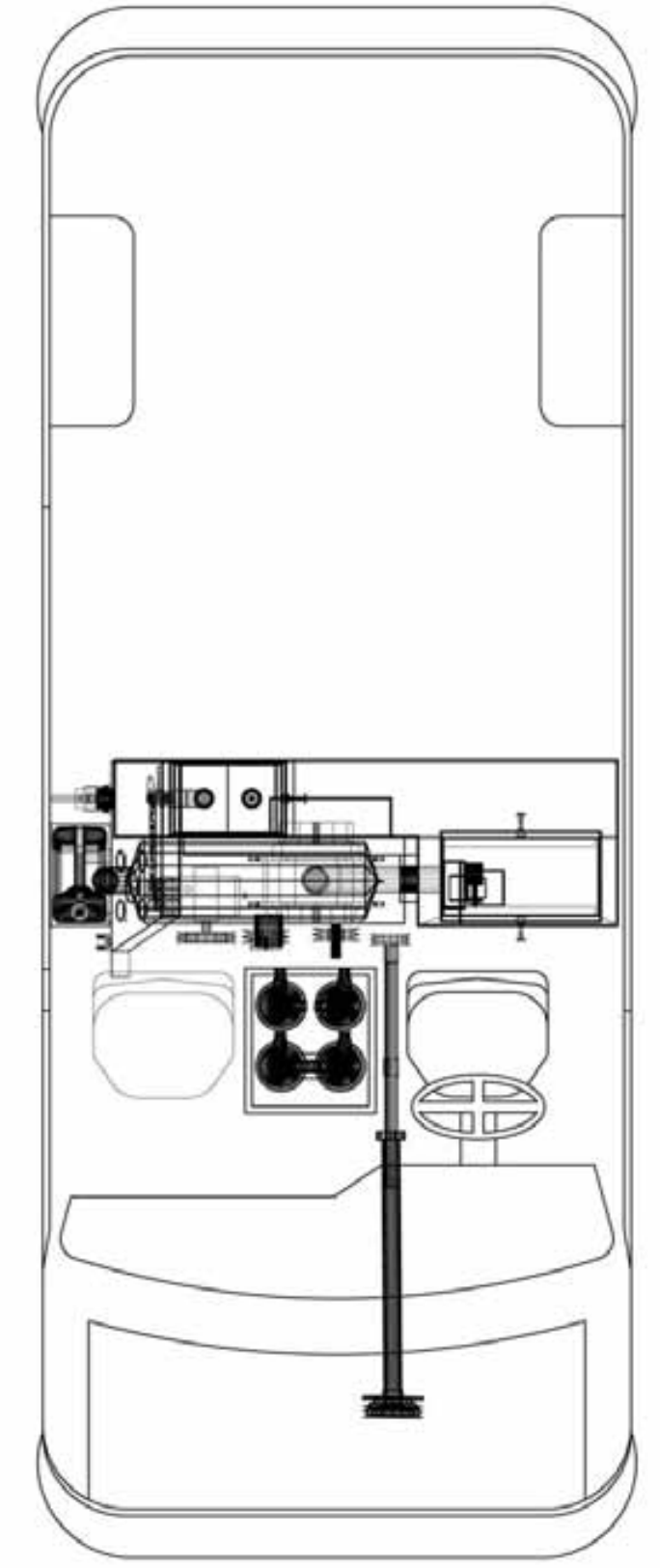
PROBLEM	CAUSE	SOLUTION
Loss of solution volume at cleaning tool orifice. Water gauge reads normal.	Plugged orifice and/or screen in the cleaning tool.	Unplug or replace orifice and/or screen
	Inlet strainer is clogged.	Inspect all lines, remove accumulated debris which is blocking proper flow. Replace and defective hoses. Remove, inspect, and clean the strainer screen. De-scale unit and install a water softener, if necessary.
	Defective quick-connect on one or more of the high pressure hoses.	Replace defective quick-connects(s) on high pressure hose(s).
	Cleaning tool valve is malfunctioning.	Repair or replace valve.
	Hose inner lining is constricted.	Remove restriction or replace hose.
	Air leak in chemical supply line, metering valve.	Check for air leaks. Replace faulty parts.
Loss of vacuum While cleaning, the Vacuum is not up to specification. Engine RPM is Normal.	Vacuum gauge is giving an improper reading.	Examine the tubing between the vacuum relief valve and the vacuum gauge and remove any blockage.
	Vacuum hose(s) is damaged, causing a suction leak.	Inspect hose(s), repair or replace.
	Waste tank gaskets not sealing properly, not positioned properly.	Inspect the gasket. Repair seal or replace. Re-position lid(s).
	Plugged vacuum hose or vacuum plumbing between vacuum inlet and strainer basket.	Unplug vacuum hose or inlet plumbing.
	Waste tank filter or strainer Basket is plugged.	Clean or replace filter. Clean strainer Basket.
	Loose vacuum pump drive Belts.	Tighten the drive belts.
	Waste tank drain valve is damaged or left open, causing a vacuum leak.	Drain the waste tank. Close drain valve, if open. Remove the dump Valve and, after inspecting, replace the defective components.
	Vacuum relief valve requires adjustment or has a vacuum leak due to damaged Diaphragm.	Re-adjust the vacuum relief valve. If the vacuum does not increase, remove and inspect the relief valve diaphragm. If damaged, replace.
	Vacuum pump is worn out.	Replace the vacuum pump.

PROBLEM	CAUSE	SOLUTION
Excessive Vacuum	Improper throttle adjustment.	Adjust throttle to set desired vacuum pressure.
	Vacuum obstruction.	Inspect hoses for obstructions.
	Vacuum relief valve requires adjustment.	Readjust the vacuum relief valve.
Loss of chemical With the cleaning tool valve open, no chemical.	The strainer at the inlet end of the chemical inlet line is clogged.	Unclog the strainer. If damaged, replace.
	Suction leak in the inlet line leading into the pump.	Inspect inlet lines and flow meter for air leaks or damage and replace, if required.
	Chemical container is empty.	Refill container, then prime system
	Chemical metering valve is defective.	Replace valve.
	Defective cylinder in the water pump.	Measure the pump volume. If the pump volume is less than normal, refer to "Loss of Pump Volume" in the Troubleshooting section in this manual.
Chemical flow meter indicates flow with the tool valve closed.	External leak in chemical piping.	Tighten fittings. Re-apply thread sealant where required. If any fittings are damaged, replace.
Water pump does not engage.	Defective electrical connection in the console wiring or defective switch.	Examine switch, electrical connections, and wiring. Repair any defective connections. If there is power going to the switch but not going out, replace the defective switch.
	Water pump has not been activated.	Turn solution pump switch to on.
	Defective water pump clutch. NOTE: The clutch may be manually set by inserting two 1/4 x 20 x 1/2 bolts. Line up the holes on the clutch and insert the bolts. To disengage the pump, remove the bolts.	If there is power in the switch, but not power at the clutch, replace the defective wire. If there is power at the clutch, replace the defective switch.
	Loose or broken water pump belts.	Tighten or replace belts.

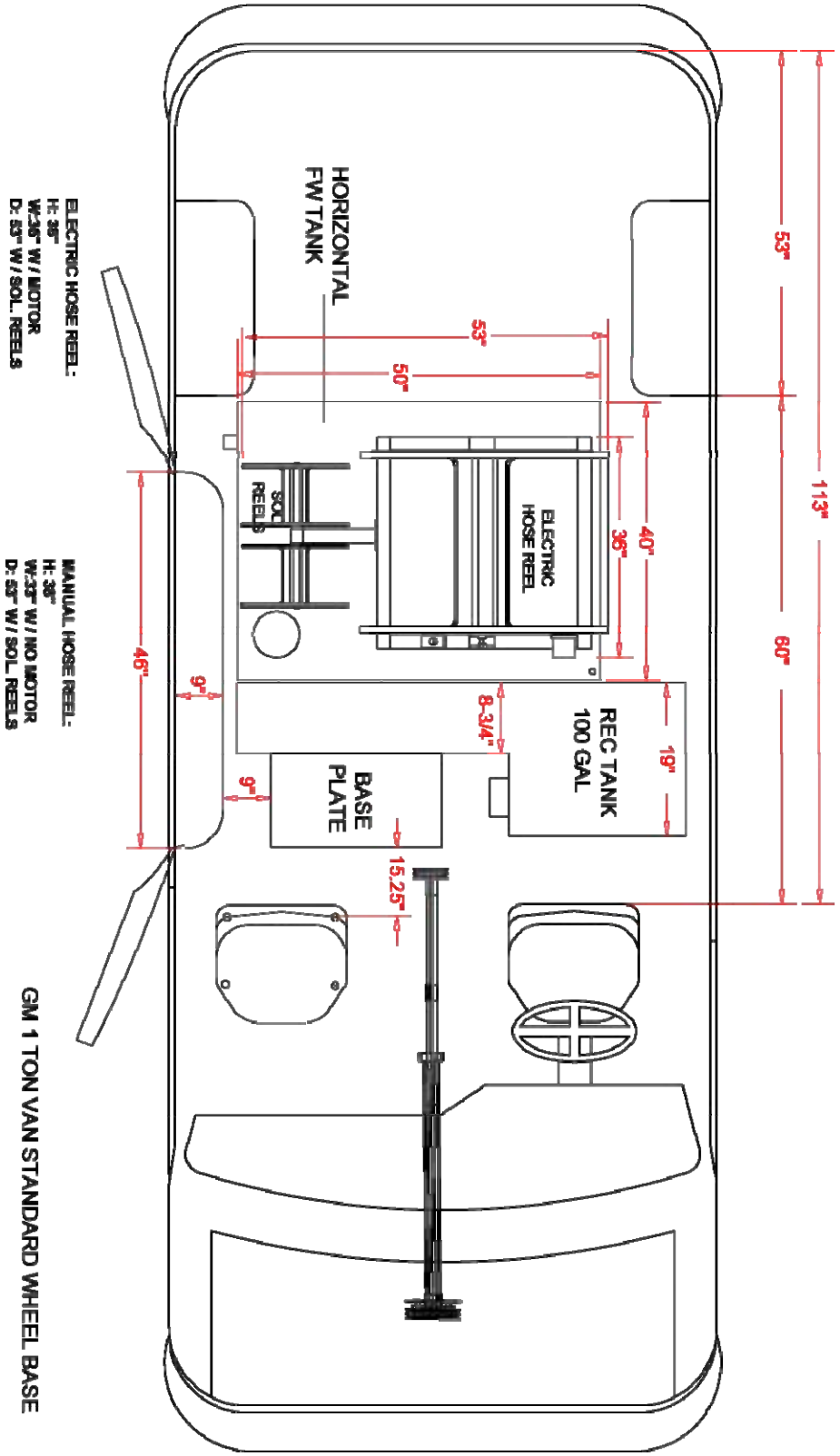
CLEANCO COMPACT OVERHEAD VIEW
(DUAL HEAT EXCHANGER)



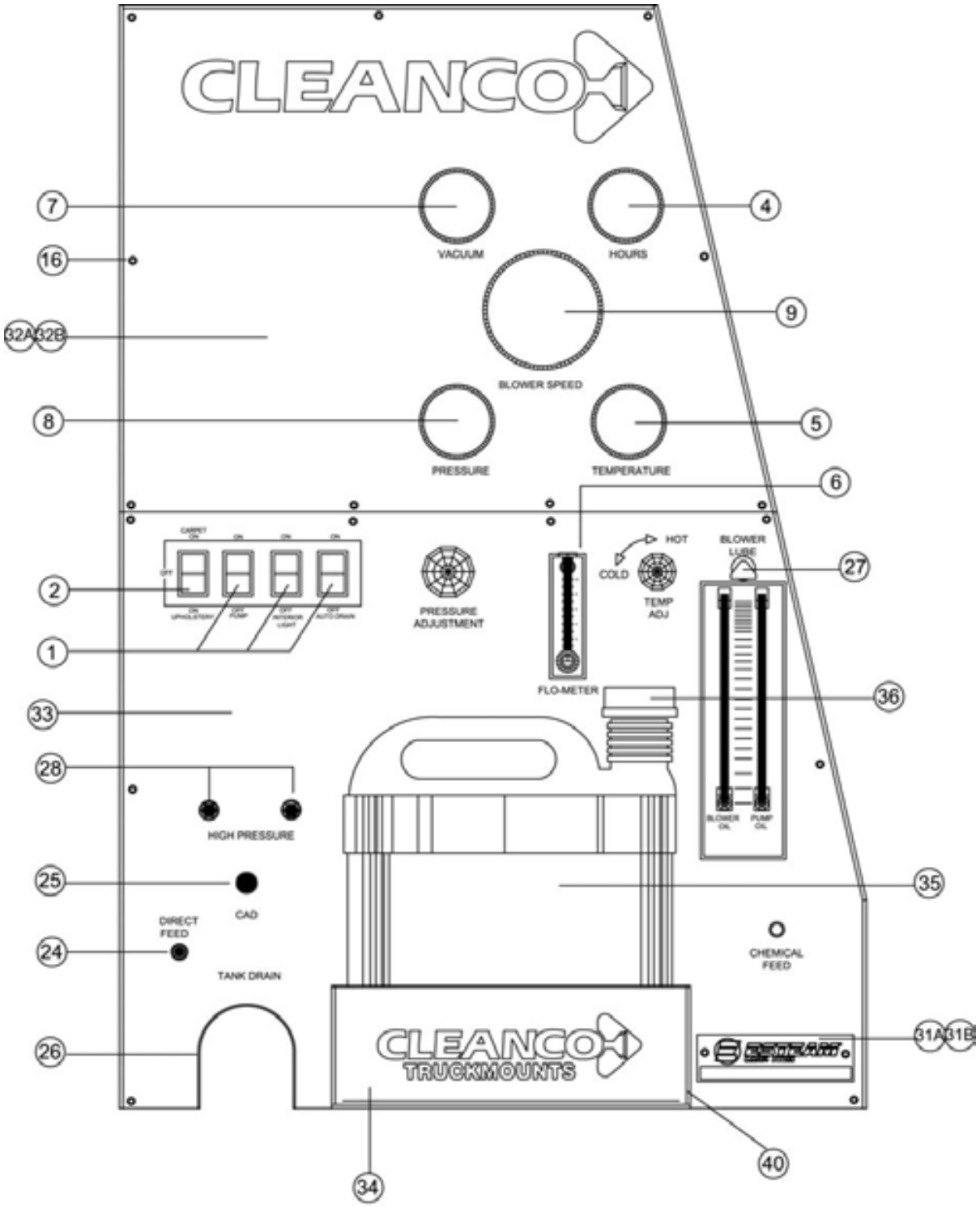
CLEANCO COMPACT OVERHEAD VIEW (QUAD HEAT EXCHANGER) OPTIONAL



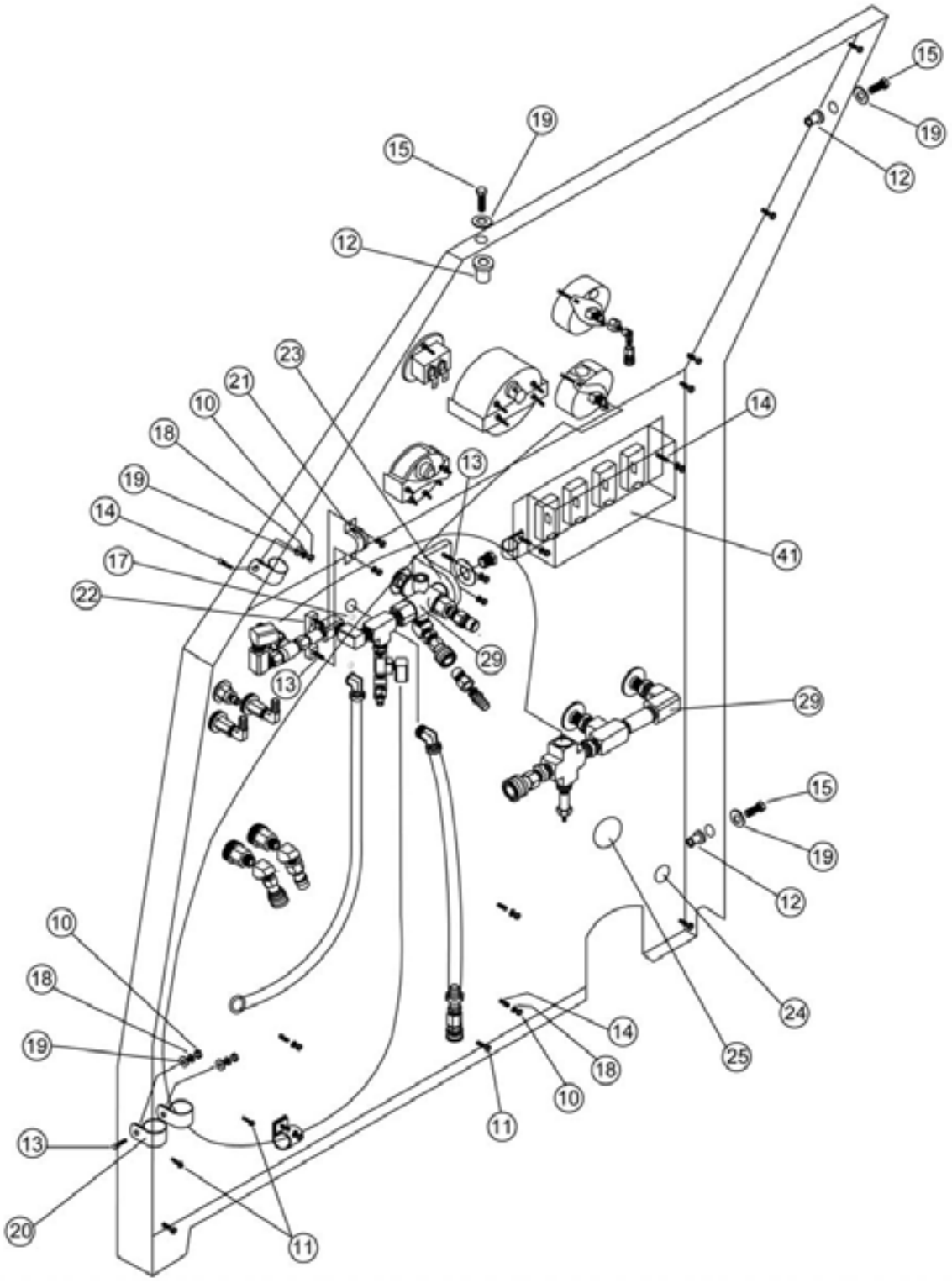
CLEANCO COMPACT WITH ELECTRIC HOSE REEL
OVERHEAD VIEW



FRONT PANEL 45 &47 FRONT VIEW



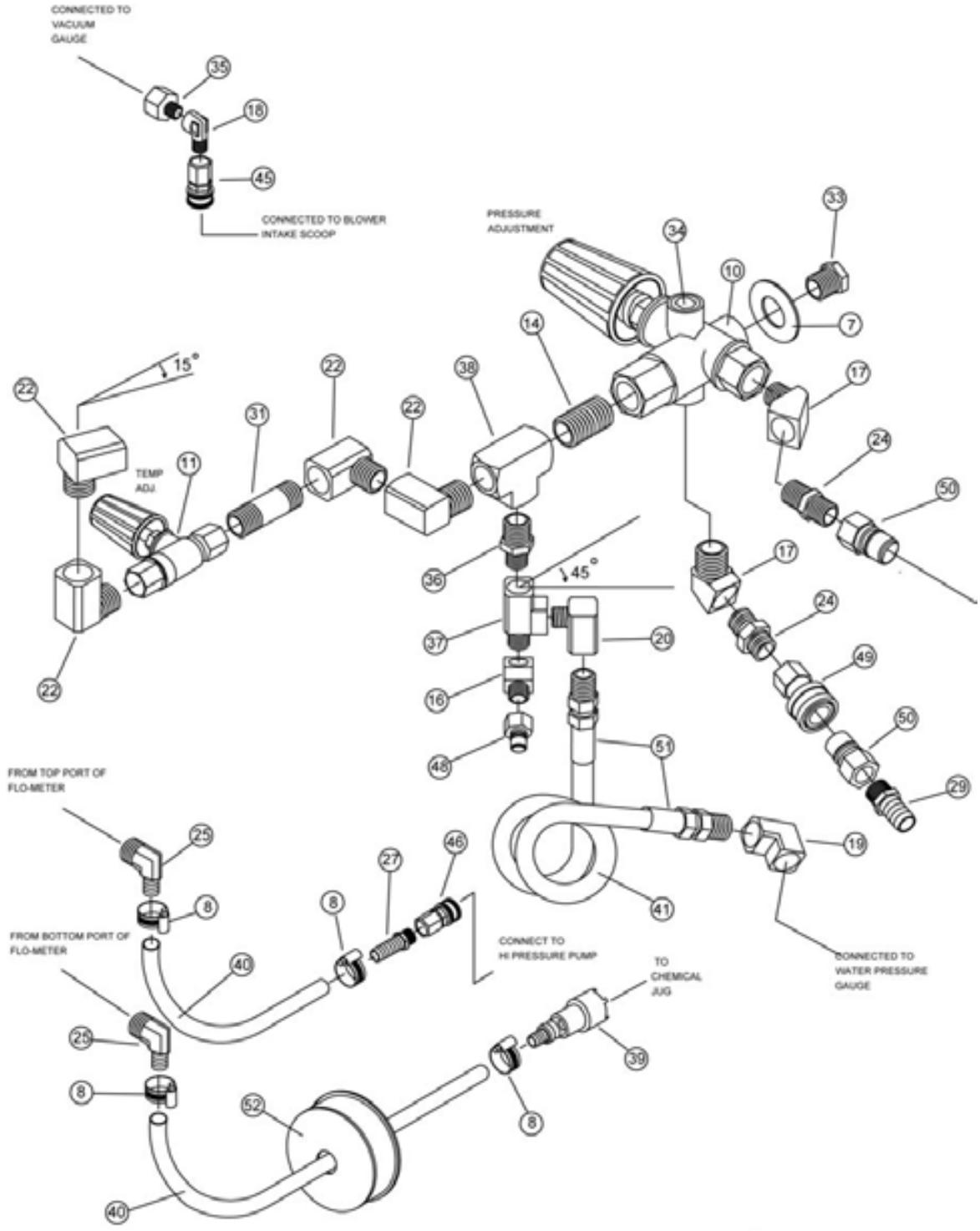
FRONT PANEL 45 & 47 BACK VIEW



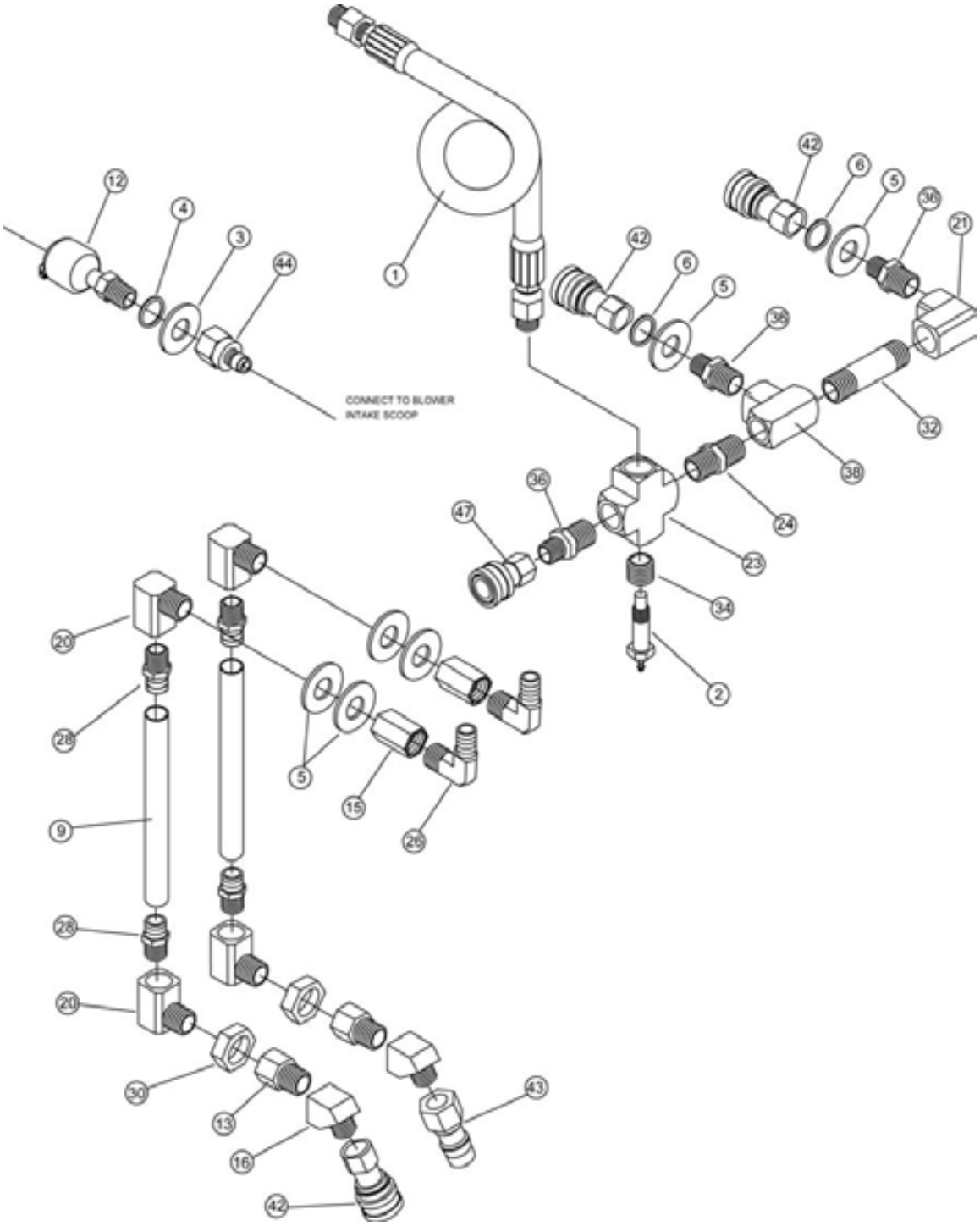
FRONT PANEL 45 & 47

REF	PART NO.	DESCRIPTION	NOTES:
1	305-085	Switch, Rocker - White	
2	305-090	Rocker Switch 2 Pole White	
3	328-006	Wiring Harness Compact (Rear Section)	Not Shown
4	360-110	Hour Meter, Truck Mount	
5	360-205	Guage , Temp -Electronic	
6	360-125	Chemical Flow Meter, GPH (2-10)	
7	360-131	Guage, Vac Cleanco	
8	360-145	Guage, 2000 PSI Black BMT Cleanco	
9	360-211	Tach/ Blower Speed	
10	400-005	Hex Nut, 1/4" x 20" SS	
11	400-125	Locknut, 8" x 32" Nylon S.S.	
12	400-250	Well Nut, 1/4" X 20" Neopene	
13	405-600	Clinch Stud, 1/4" X 1" S.S.	
14	405-610	Clinch Stud, 1/4" X 3/4" S.S.	
15	405-620	CS, 1/4" X 3/4" SS	
16	410-105	CS, 8-32 X 1/2" SOC S/S	
17	410-220	MS, 10-32 X 3/8" Pan RB Zinc	
18	415-025	LW, 1/4" SS	
19	415-125	FW, 1/4" SS	
20	425-140	Clamp, Tube 3/4"	
21	460-010	Strap, 1/2"	
22	465-670	BRKT, Clamp Panel	
23	465-675	BRKT, Angle	
24	498-050	Plug, 5/8" Nylon	
25	498-070	Plug 1” Nylon	
26	499-005	Trim, 1/2" Black	
27	551-075	Vac Lube Port	
28	580-010	Q.C 1/4 Female (Close)	
29	620-200	Plumbing ASSM (Complete)	
30	620-205	Wiring Harness (Complete)	Not Shown
31A	703-345	Decal, 45 S/N Plate	
31B	703-347	Decal, 47 S/N Plate	
32A	703-501	Decal, 45 Panel	
32B	703-502	Decal, 47 Panel	
33	703-504	Decal, Compact Bottom Panel	
34	703-506	Decal, Chemical Jug BRKT	
35	759-005	Chemical Jug 10L	
36	759-015	Lid, Jug 10L & 20L	
37	845-281	Panel Frame, Compact	Not Shown
38	845-283	Panel, overlay, Top-Compact	Not Shown
39	845-284	Panel, overlay, Bottom-Compact	Not Shown
40	845-295	BRKT, Chemical Jug-Compact	
41	845-331	Cover, Rocker Switch	

FRONT PANEL PLUMBING (P. 1)



FRONT PANEL PLUMBING (P. 2)



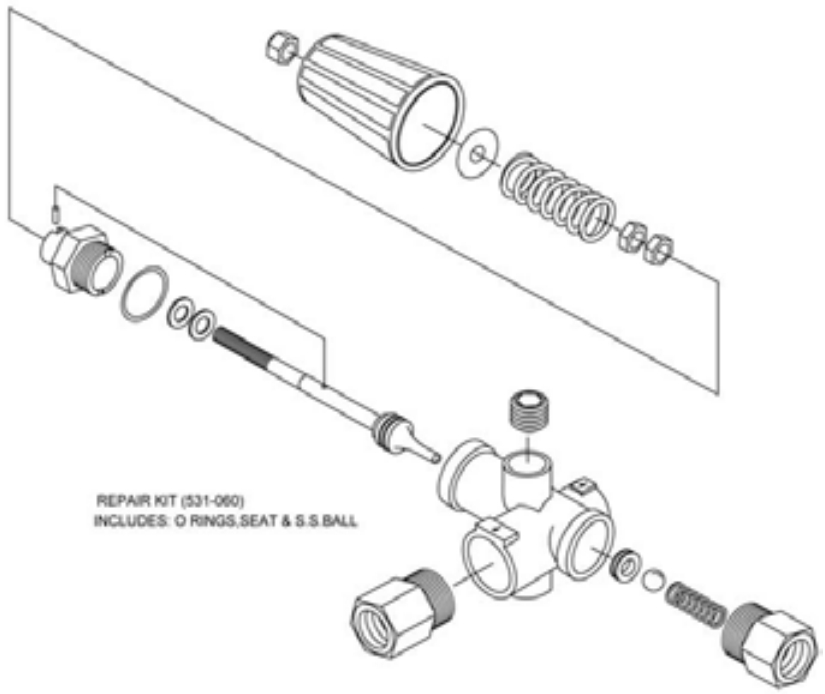
PLUMBING ASSEMBLY (P. 1)

REF	PART NO.	DESCRIPTION	NOTES:
1	263-040	Hose ASSM, Temp(CV) C-Panel 3/8 X 19-1/2"	
2	360-200	Sender,Temp-Electronic	
3	415-135	FW, 3/8" SS	
4	415-137	FW, 3/8" AN SS	
5	415-155	FW, 1/2" SS	
6	415-157	FW, 1/2" AN SS	
7	415-165	FW, 5/8" SS	
8	425-115	Clamp, Hose Silicone	
9	480-015	PVC Tubing, 3/8" ID Clear	
10	530-105	Pulsa Unloader	
11	551-020	Valve, Temp Control	
12	551-075	Vac Lube Port	
13	555-002	ADPT, 1/4 M x 1/4 F	
14	555-074	Closed Nipple, 3/8"	
15	555-132	Coupling, 1/4"	
16	555-184	Elbow 45, Street 1/4"	
17	555-186	Elbow 45, 3/8" Street Extruded	
18	555-204	Elbow 90, 1/8" Street Forged	
19	555-206	Elbow 90, 1/4" FPT Extruded	
20	555-208	Elbow 90, 1/4" Street Extruded	
21	555-212	Elbow 90, 3/8" FPT	
22	555-214	Elbow 90, 3/8" Street Extruded	
23	555-242	Extruded Cross, 3/8"	
24	555-274	Hex Nipple, 3/8"	
25	555-320	Hose Barb 90, 1/4 Barb X 1/8 MPT	
26	555-324	Hose Barb 90, 3/8 Barb X 1/4 MPT	
27	555-350	Hose Barb, 1/4 Barb X 1/8 MPT	
28	555-364	Hose Barb, 3/8 Barb X 1/4 MPT	
29	555-390	Hose Barb, 5/8 Barb X 3/8 MPT	
30	555-408	Locknut, 1/4 FPT Brass	
31	555-430	Long Nipple, 3/8 X 1-1/2 "	
32	555-434	Long Nipple, 3/8 X 2"	
33	555-454	Plug, 3/8 MPT Hex Head	
34	555-456	Plug, 3/8" MPT (Countersunk)	
35	555-510	Reducing Adapt, 1/4 FPT Z 1/8 MPT	
36	555-542	Reducing Nipple, 3/8 MPT X 1/4 MPT	
37	555-636	Tee, 1/4" Street Extruded	
38	555-640	Tee, 3/8" FPT.	
39	560-112	Foot Valve Strainer	
40	572-100	Clear Braided Hose 1/4”	
41	572-125	Pulse Hose, 3/8"	
42	580-010	Q.C. 1/4" Fem (CLosed)	
43	580-015	Q.C. 1/4" Male (Closed)	
44	580-101	Q.C. 1/8" Male Shutoff	

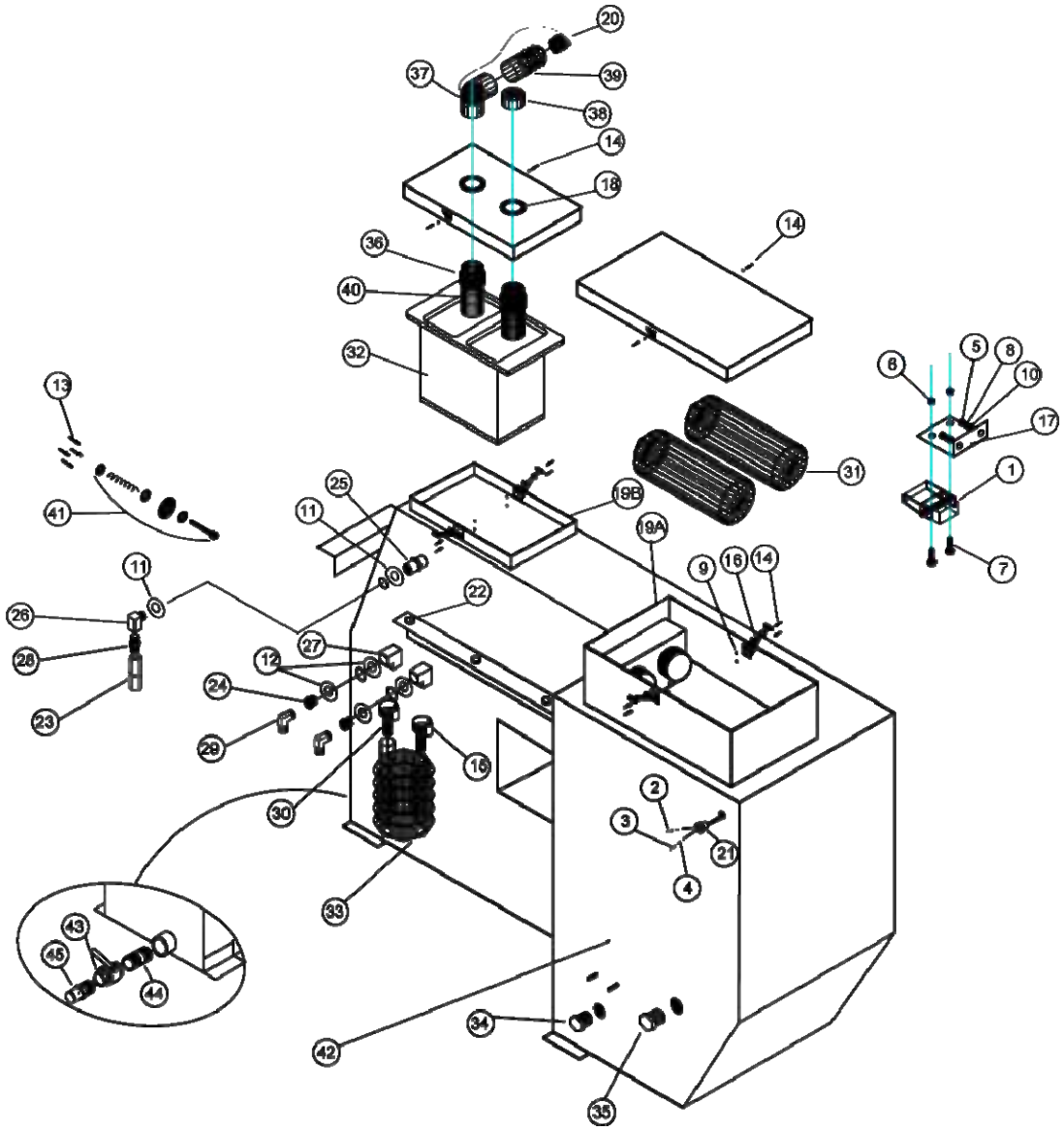
PLUMBING ASSEMBLY (P. 2)

45	580-106	Q.C. 1/8” Fem Shutoff	
46	580-110	Q.C. 1/8" Fem (Open)	
47	580-120	Q.C. 1/4" Fem (Open)	
48	580-125	Q.C. 1/4" Male (Open)	
49	580-140	Q.C. 3/8" Fem (Open)	
50	580-145	Q.C. 3/8" Male (Open)	
51	581-065	Crimp FTNG, 3/8" Pulse Hose 1/4 MPT SVL	
52	795-015	Lid, Jug 10 LT & 20 LT	

PRESSURE REGULATOR DETAIL



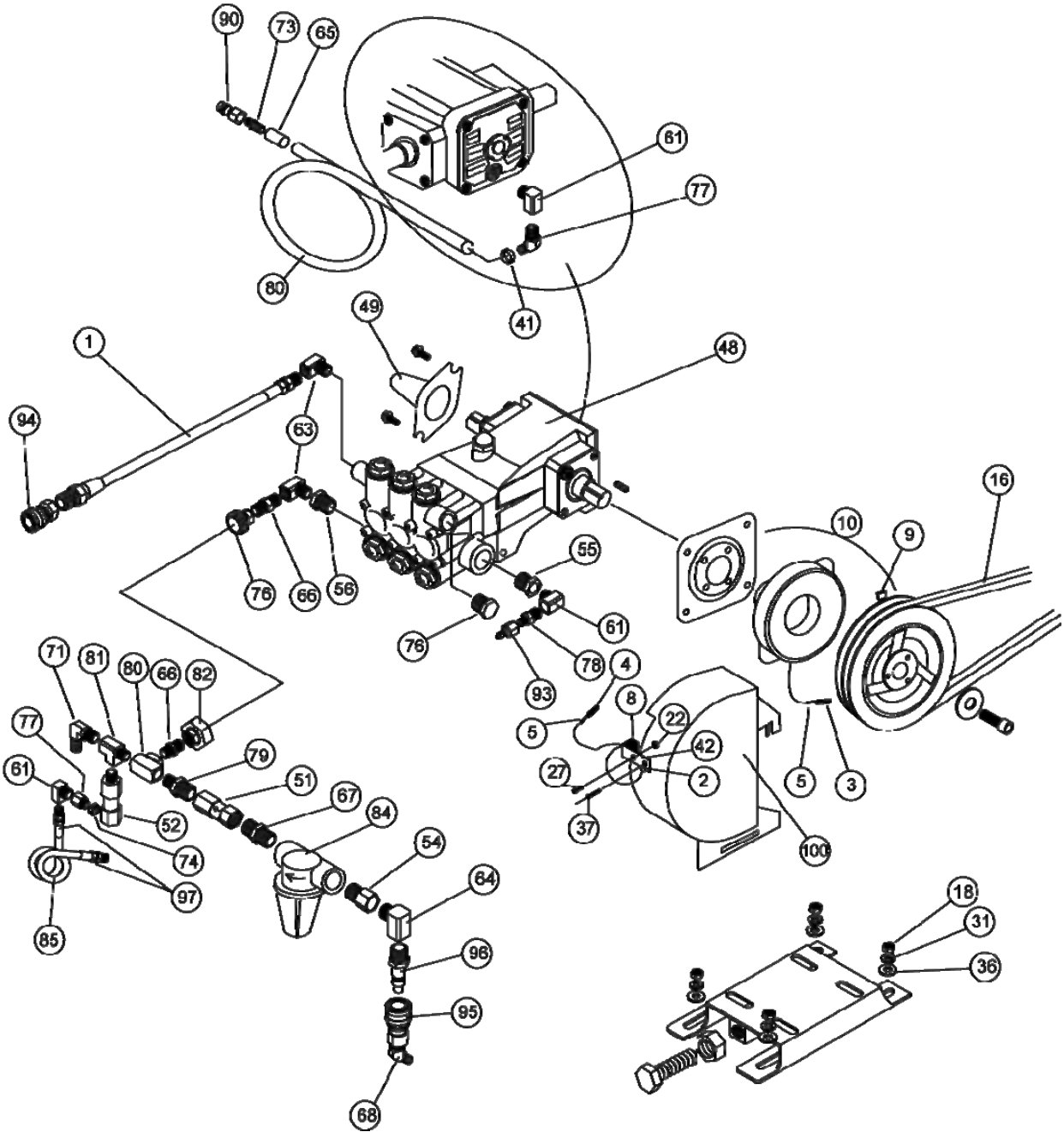
COMPACT RECOVERY TANK



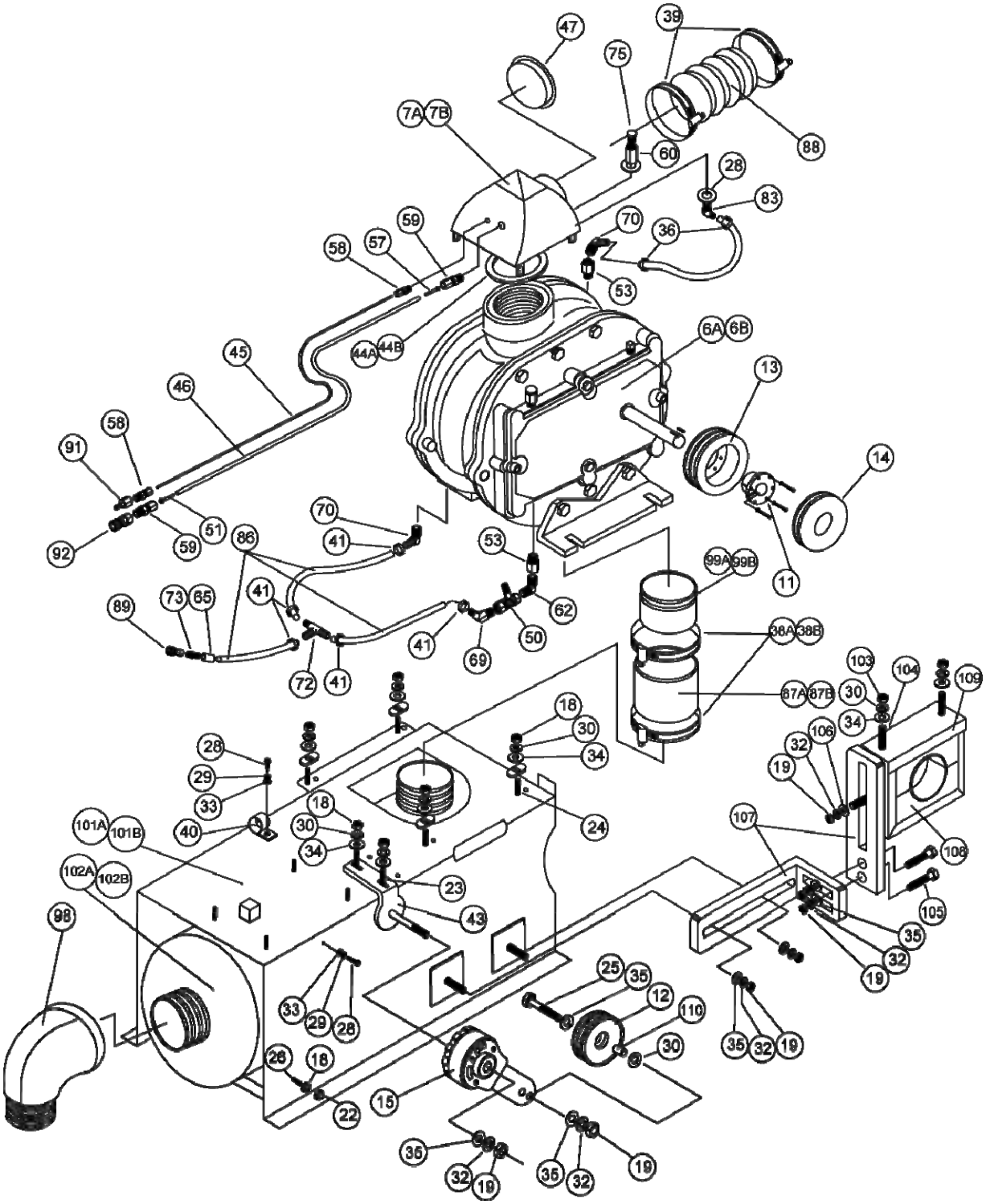
COMPACT RECOVERY TANK

REF	PART NO.	DESCRIPTION	NOTES:
1	305-025	Switch, Auto Shut Off	
2	325-303	Power Lock Terminal - Red	
3	325-305	Power Lock Terminal - Yellow	
4	325-320	Power Lock Insert	
5	400-005	Hex Nut, 1/4 x 20 SS	
6	400-150	Locknut, 10 x 32 Nylon SS	
7	410-205	MS, 10-32 x 1/2 Panphil SS	
8	415-025	LW, 1/4 SS	
9	415-103	FW, 4 SS	
10	415-125	FW, 1/4 SS	
11	415-155	FW, 1/2 SS	
12	415-165	FW, 5/8 SS	
13	420-151	Rivet, Fullysealed #68 AL/AL 3/16 x 3/4	
14	420-160	Rivet, Fullysealed AL/AL 1/8" x 1/2"	
15	425-005	Clamp, #8 Hose 1/2 x 1	
16	445-040	Catch, Rubber	
17	465-160	Float Switch Bracket	
18	475-090	Gasket, Intake Rec. Tank	
19A	475-101	Gasket, Channel (Lint Basket)	
19B	475-103	Gasket, Channel (Filter)	
20	498-020	Plug, Rubber #10 C/W Chain	
21	498-030	Grommet, PVC	
22	498-103	Pad, Felt Disk	
23	550-035	Check Valve, 1/4 FM x FM	
24	555-004	ADPT, 3/8 M x 3/8 F	
25	555-132	Coupling, 1/4"	
26	555-208	Elbow 90, 1/4" Street Extruded	
27	555-212	Elbow 90, 3/8" FPT.	
28	555-272	Hex Nipple, 1/4"	
29	555-330	Hose Barb 90, 5/8 Barb x 3/8 MPT	
30	555-390	Hose Barb, 5/8 Barb x 3/8 MPT	
31	560-205	Filter, 2 1/2" S/S	
32	560-365	Filter Basket, Rec. Tank	
33	572-136	Hose, 5/8 Blue Hi-Miler	
34	582-210	Plug, 1” Threaded	
35	582-212	Plug, 1-1/4” Threaded	
36	588-015	ABS Adpt 2", S x MPT	
37	590-025	Elbow 90, 2"	
38	590-235	PVC Cap, 2"	
39	590-420	PVC Hose Barb, 2"	
40	595-010	ABS Pipe, 2"	
41	620-405	Vac Breaker Assy	
42	860-260	Rec. Tank 100 Comp.45/47/56	
43	545-040	Ball Valve 2” Brass	
44	590-240	PVC Close Nipple 2”	
45	590-420	PVC Hose Barb, 2	

COMPACT BASEPLATE 45 & 47 (P. 1)



COMPACT BASEPLATE 45 &47 (P. 2)



COMPACT BASEPLATE 45 &47 (P. 1)

REF	PART NO.	DESCRIPTION	NOTES:
1	263-045	Hose Assm 3/8 x 25"	
2	325-230	Blue Ring, 1/8	
3	325-300	Power Lock Terminal - Black	
4	325-315	Power Lock Terminal - Green	
5	325-320	Power Lock Insert	
6A	358-112	Roots 45 DSL Blower WHISPAIR	CP Baseplate 45
6B	358-122	Roots 47 DSL Blower WHISPAIR	CP Baseplate 47
7A	358-345	Intake Scoop 45 VR2	CP Baseplate 45
7B	357-347	Intake Scoop 47 VR2	CP Baseplate 47
8	360-221	Sender, Tach	
9	360-222	Magnet, Tach Sender	
10	365-041	Cat Clutch	
11	385-015	Bushing, H 7/8	
12	385-110	Pulley, Dual Idler	
13	385-121	Pulley, 2AK49H	
14	385-154	Pulley, 2.5	
15	390-145	Tensioner, Spring 56	
16	397-030	Belt, Compact Pump	
17	400-005	Hex nut, 1/4 x 20 SS	
18	400-015	Nut, 3/8 x 16 Zinc	
19	400-045	Hex Nut, 5/16 Zinc	
20	400-050	Hex Nut, 1/2 Zinc	
21	405-115	Bolt, 3/8 x 1 1/2 GR5 Zinc	
22	400-125	Locknut, 8 x 32 Nylon SS	
23	405-110	Bolt 3/8 x 1 1/4 GR5 Zinc	
24	405-115	Bolt,3/8 x 1 1/2 GR5 Zinc	
25	405-316	Bolt, 1/2 x 2-1/2 GRD 8	
26	405-600	Clinch Stud, 1/4 x 1 SS	
27	410-105	CS, 8 – 32 x 1/2 Soc SS	
28	410-250	Tek Screw, 1/4 x 1	
29	415-020	LW, 1/4 Zinc	
30	415-030	LW, 3/8 Zinc	
31	415-040	LW, 5/16 Zinc	
32	415-050	LW, 1/2 Zinc	
33	415-120	FW, 1/4 Zinc	
34	415-130	FW, 3/8 Zinc	
35	415-152	FW, 1/2 SAE Zinc	
36	415-200	FW, 5/16 Zinc	
37	420-025	Rivet AL/AL #64	
38A	425-035	Clamp, #48 Hose	CP Baseplate 45
38B	425-040	Clamp, #60 Hose	CP Baseplate 47
39	425-045	Clamp, #72 Hose	
40	425-140	Clamp, Tube 3/4”	
41	425-180	0 - Clamp 19/32	

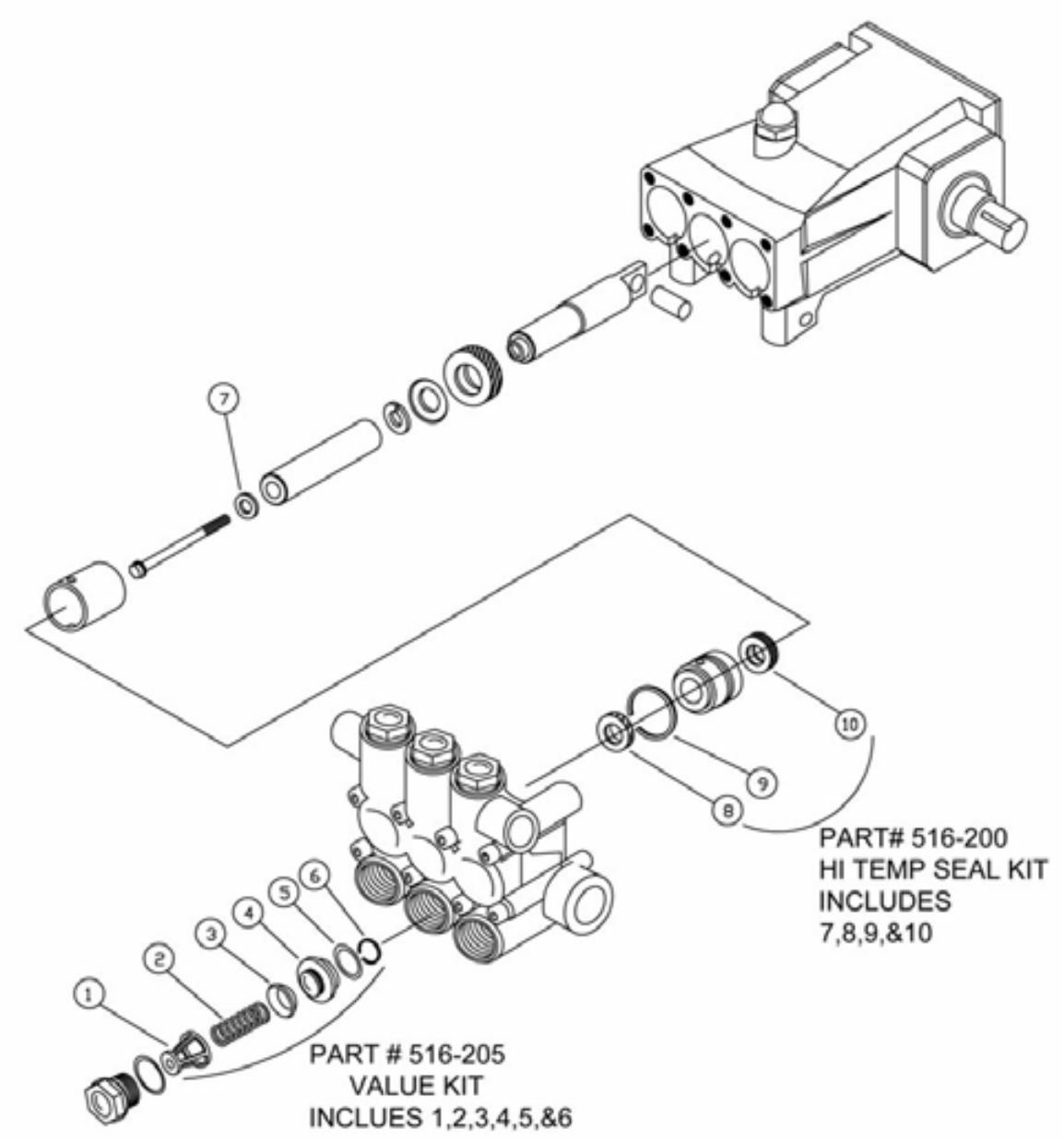
COMPACT BASEPLATE 45 &47 (P. 2)

42	465-013	BRKT, Sensor	
43	465-652	Brkt, Tensioner 56 V2	
44A	475-305	Gasket, 45 Intake Scoop	CP Baseplate 45
44B	475-310	Gasket, 47 Intake Scoop	CP Baseplate 47
45	480-100	Tubing, 1/8" Nylon	
46	480-105	Tubing, 1/4" Nylon	
47	498-080	Plug, 4-1/4”	
48	516-020	Cat Pump Model 5CP2120W	
49	516-210	Shaft Protector	
50	545-010	Ball Valve , 1/4”	
51	550-040	Check Valve, 1/2 FM x FM	
52	551-070	Thermal Valve, 3/8 NTP (140F)	
53	555-004	Adpt, 3/8 M x 3/8 F	
54	555-006	Adpt, 1/2 M x 1/2 F	
55	555-030	Bushing, 1/2 MPT x 1/4 FPT	
56	555-032	Bushing, 1/2 MPT x 3/8 FPT	
57	555-050	Brass Insert, 1/4 Synflex	
58	555-104	Comp. Fitting, 1/8 x 1/8 Male	
59	555-106	Comp. Fitting, 1/4 x 1/8 MPT	
60	555-132	Coupling, 1/4"	
61	555-208	Elbow 90, 1/4" Street Extruded	
62	555-210	Elbow 90, 3/8 MPT x 1/4 MPT	
63	555-214	Elbow 90, 3/8" Street Extruded	
64	555-218	Elbow 90, 1/2" Street Extruded	
65	555-250	Ferrule, .675 ID	
66	555-274	Hex Nipple, 3/8"	
67	555-276	Hex Nipple, 1/2"	
68	555-304	Hose Barb 45, 5/8 Barb x 3/8 MPT	
69	555-324	Hose Barb 90, 3/8 Barb x 1/4 MPT	
70	555-326	Hose Barb 90, 3/8 Barb x 3/8 MPT	
71	555-330	Hose Barb 90, 5/8 Barb x 3/8 MPT	
72	555-359	Hose Barb Tee, 3/8	
73	555-364	Hose Barb, 3/8 Barb x 1/4 MPT	
74	555-406	Locknut, 1/8" Brass	
75	555-452	Plug, 1/4 MPT Hex	
76	555-454	Plug, 3/8 MPT Hex Head	
77	555-510	Reducing Adpt, 1/4 FPT x 1/8 MPT	
78	555-540	Reducing Nipple, 1/4 MPT x 1/8 MPT	
79	555-544	Reducing Nipple, 1/2 MPT x 3/8 MPT	
80	555-640	Tee, 3/8" FPT.	
81	555-642	Tee, 3/8" Street Extruded	
82	555-660	Union Coupling, 3/8" N	
83	555-928	Hose Barb 45, 3/8 Barb x 1/4 MPT	
84	560-113	Filter, Inline 1/2" (TM)	
85	572-042	Solution Hose, 1/4" Blue	
86	572-120	Heater Hose, 3/8" Silicone	

COMPACT BASEPLATE 45 &47 (P. 3)

87A	575-020	All Flex Hose, 2 7/8" ID	CP Baseplate 45
87B	575-035	All Flex Hose, 3 1/2" ID	CP Baseplate 47
88	575-038	Ducting Hose 4 1/2 ID	
89	580-010	Q.C. 1/4" Fem (Closed)	
90	580-015	Q.C. 1/4" Male (Closed)	
91	580-101	Q.C. 1/8" Male Shutoff	
92	580-106	Q.C. 1/8" Fem Shutoff	
93	580-115	Q.C. 1/8" Male (open) See Notes	
94	580-140	Q.C. 3/8" Fem (Open)	
95	580-200	Q.C. 3/8" Fem (One Way) Water	
96	580-205	Q.C. 3/8" Male (Open) Water	
97	581-015	Crimp Ftng, 1/4" HP Hose - 1/4 MPT SVL	
98	582-004	90, 2 1/2" Street Metal	
99A	582-024	Close Nipple, 2 1/2 x 2 1/2 Blk Mal	CP Baseplate 45
99B	582-917	Nipple, 3" NPT x 4" Black Steel	CP Baseplate 47
100	845-313	Cover, Clutch	
101A	845-545	Baseplate, 45	CP Baseplate 45
101B	845-547	Baseplate, 47	CP Baseplate 47
102A	850-030	45 Silencer	CP Baseplate 45
102B	850-034	47 Silencer	CP Baseplate 47
103	400-030	Hex Nut 3/8 - 24 Zinc	
104	405-065	Bolt, 3/8 x 5 GR8 Zinc	
105	405-311	Bolt 1/2 x 1 3/4 GR8	
106	415-150	FW 1/2 Zinc	
107	465-291	Bracket PTO Rear	
108	498-225	Pillow Block, Rear Set	
109	845-040	Rear Pillow block Plate	
110	905-000	Bushing, 1/2 x 11/16 O.D	

COMPACT PUMP KIT



KIT, INSTALLATION 45 & 47 (P. 1)

KIT, INSTALLATION 45 & 47 (P. 2)

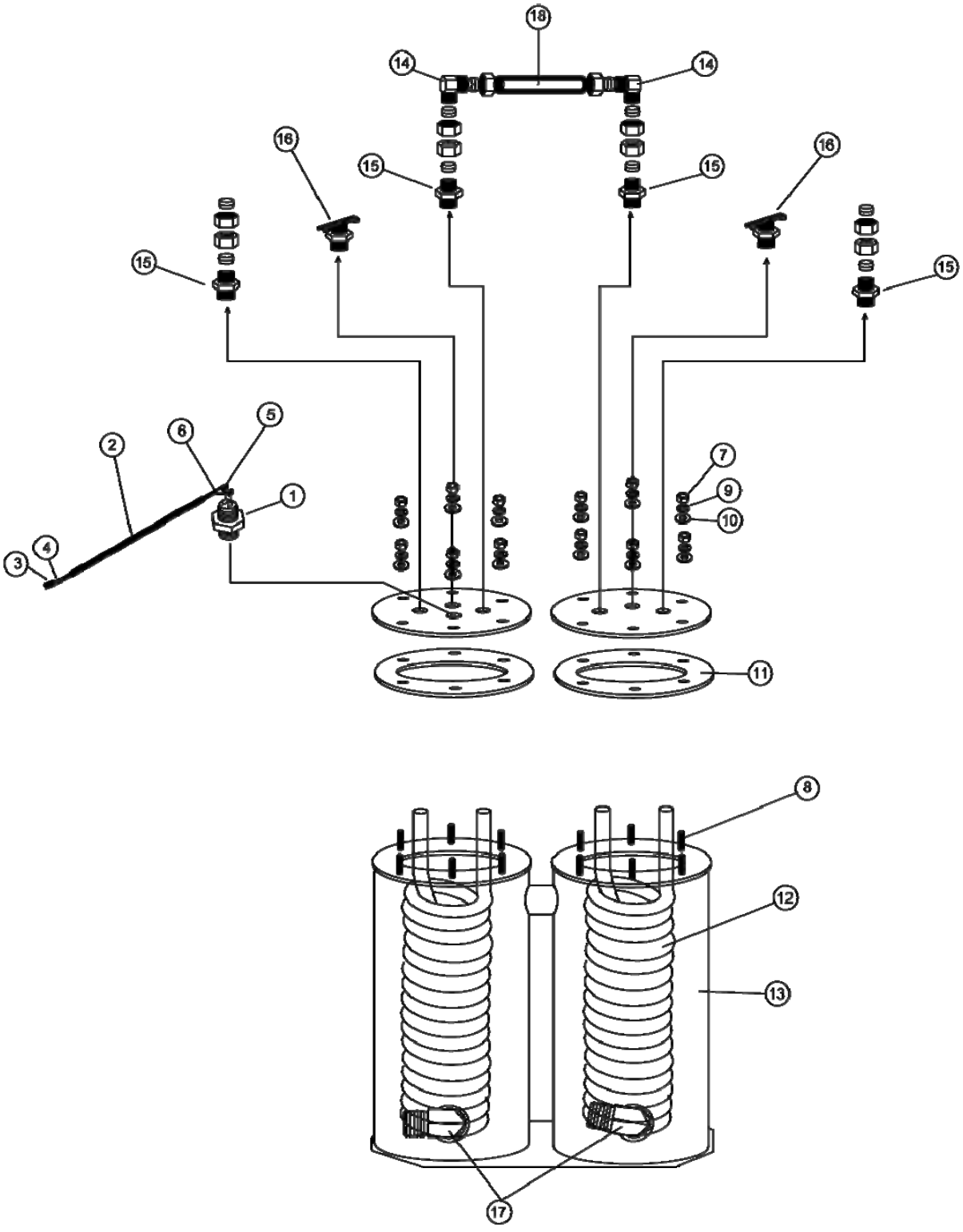
KIT, INSTALLATION 45 & 47(P. 1)

REF	PART NO.	DESCRIPTION	QUANTITY
1	220-015	Holder Wand 2 Jet (Top & 12" BTM)	1 Set
2	220-410	Lock Up Thru Floor Hose Port	1
3	260-238-50	Vac Hose Blue 2"	5'
4	263-025	Hose ASSM, 43" Heat Exch	1
5	263-030	Hose ASSM, 48" Heat Exch	1
6	263-065	Prime Line, 4' ASSM 1/4"	1
7	320-105	Spot Light	2
8	350-108	Tie Strap, 14" Black	6
9	385-016	Bushing, H 1	1
10	385-128	Pulley, 2AK74H	1
11	397-905	Belt, AX45	2
12	400-005	Hex Nut, 1/4 x 20 SS	4
13	400-015	Nut, 3/8 x 16 Zinc	22
14	400-050	Hex Nut, 1/2 Zinc	1
15	400-051	Nut, 1/2 GR8	4
16	400-250	Well Nut,1/4 x 20 Neoprene	2
17	405-115	Bolt, 3/8 x 1-1/2 GR5 Zinc	6
18	405-156	Bolt, 3/8 x 4 Allthread Zinc	4
19	405-176	Bolt, 3/8 x 6 Allthread Zinc	2
20	405-185	Bolt 3/8 x 3 GR2 Zinc allthread	12
21	405-311	Bolt, 1/2 x 1-3/4 GR8	2
22	405-620	CS,1/4 x 3/4 SS (Hex HD)	10
23	410-050	W.S., 6 x 1/2 FT RB Zinc	11
24	410-125	SMS, 8 x 5/8 Pan Rob, SS	14
25	410-250	Tek Screw, 1/4 x 1	20
26	415-030	LW, 3/8 Zinc	22
27	415-050	LW, 1/2 Zinc	5
28	415-125	FW, 1/4 SS	4
29	415-130	FW, 3/8 Zinc	14
30	415-150	FW, 1/2 Zinc (Max O-D)	3
31	415-152	FW, 1/2 SAE Zinc	2
32	415-310	FNDW, 3/8 OS-(MNT PLT) Z PLT	12
33	420-151	Rivet, Fullsealed #68	9
34	425-005	Clamp, #8	8
35	425-010	Clamp, #20	8
36	425-015	Clamp, #28	2
37	425-035	Clamp, #48	2
38	425-040	Clamp, #60	2
39	425-100	Clamp 1/2 Tube Plastic	5
40	425-135	Clamp, Tube 1-1/4"	3
41	425-235	Clamp, Rear PTO ASSY	1
42	425-505	Rake Clips, Carpet	1
43	445-030	Buckle, Doghouse	2
44	465-291	BRKT, PTO Rear Compact	1

KIT, INSTALLATION 45 & 47 (P. 2)

45	545-005	Ball valve Mini 1/4	1
46	545-040	Ball Valve, 2” Brass –Fem, Pipe	1
47	572-136	Heater Hose, 5/8" Blue Hi-Miler	10’
48	572-140	Heater Hose, 1" Blue Hi-Miler	25
49	572-166	Formed Hose 3” Curved	1
50	579-040	Cuff, 2” Hose Grey	1
51	590-240	PVC Close Nipple	1
52	590-420	PVC Hose Barb 2” Barb x 2” MPT	1
53	600-055	Kit, Electrical	1
54	600-125	Kit, Muffler	1
55	703-371	Decal, Caution A/c & Heat	1
56	703-405	Decal, Cleanco (White)	1
57	703-800	Maintenance Schedule, Cleanco	1
58	703-805	Operating Instructions, PTO	1
59	755-080	Nut Driver, 7/16”	1
60	759-005	Chemical, Jug, 10LT	1
61	760-910	CD,Compact 45 & 47 Owner Manual	1
62	845-230	Support Plate	1

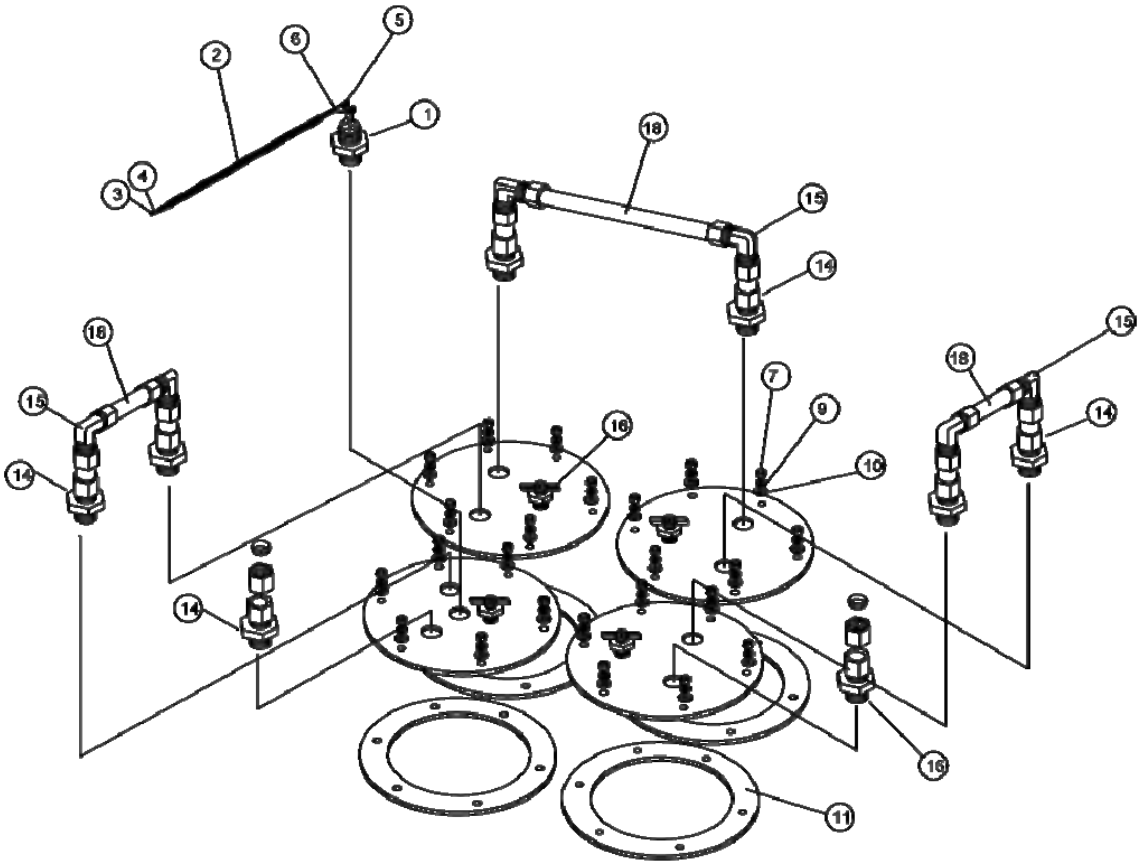
DUAL HEAT EXCHANGER



DUAL HEAT EXCHANGER

REF	PART NO.	DESCRIPTION	NOTES:
1	305-070	Switch, High Limit (250F)	
2	315-010	Conduit, Plastic 1/2"	
3	325-302	Power Lock Terminal Blue	
4	325-320	Power Lock Insert	
5	325-500	Spade, 1/4" Fem. 90 Crimp	
6	330-105	Wire, 12 Ga - Yellow	
7	400-005	Hex Nut, 1/4 x 20 SS	
8	405-600	Clinch Stud, 1/4 x 1 S.S.	
9	415-025	LW, 1/4 SS	
10	415-125	FW, 1/4 SS	
11	475-085	Gasket, 5 3/4" Heat Exch.	
12	485-100	Copper Coil, 3/8 x 25'	
13	490-100	Casing (Dual)	
14	555-121	Comp. Fitting 90, 1/2 x 3/8	
15	555-114	Comp. Fitting, 3/8 x 3/8 MPT	
16	555-164	Drain Cock, 1/4" Brass	
17	555-335	Hose Barb 90, 1" Barb x 1" MPT	
18	480-235	Tube 1/2 SS	

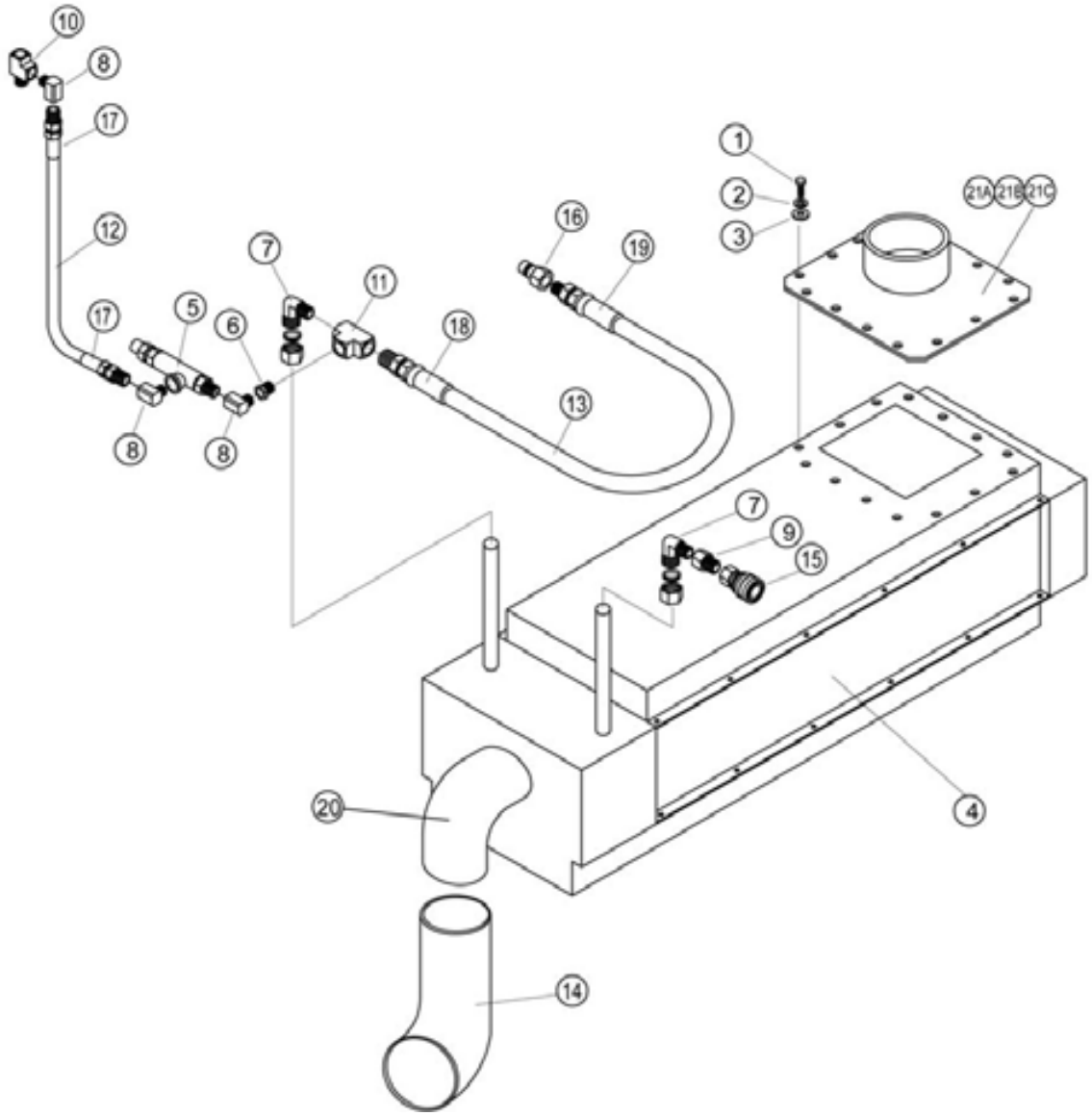
QUAD HEAT EXCHANGER OPTIONAL



QUAD HEAT EXCHANGER OPTIONAL

REF	PART NO.	DESCRIPTION	NOTES:
1	305-070	Switch, High Limit (250F)	
2	315-010	Conduit, Plastic 1/2"	
3	325-302	Power Lock Terminal Blue	
4	325-320	Power Lock Insert	
5	325-500	Spade, 1/4" Fem. 90 Crimp	
6	330-105	Wire, 12 Ga - Yellow	
7	400-005	Hex Nut, 1/4 x 20 SS	
8	405-600	Clinch Stud, 1/4 x 1 S.S.	
9	415-025	LW, 1/4 SS	
10	415-125	FW, 1/4 SS	
11	475-085	Gasket, 5 3/4" Heat Exch.	
12	485-100	Copper Coil, 3/8 x 25’	
13	490-101	Casing (Quad)	
14	555-114	Comp. Fitting, 3/8Comp x 3/8MPT	
15	555-121	Comp. Tube FTG 90, 1/2 x 3/8	
16	555-164	Drain Cock, 1/4" Brass	
17	555-335	Hose Barb 90, 1" Barb x 1" MPT	
18	480-235	Tube 1/2 SS	

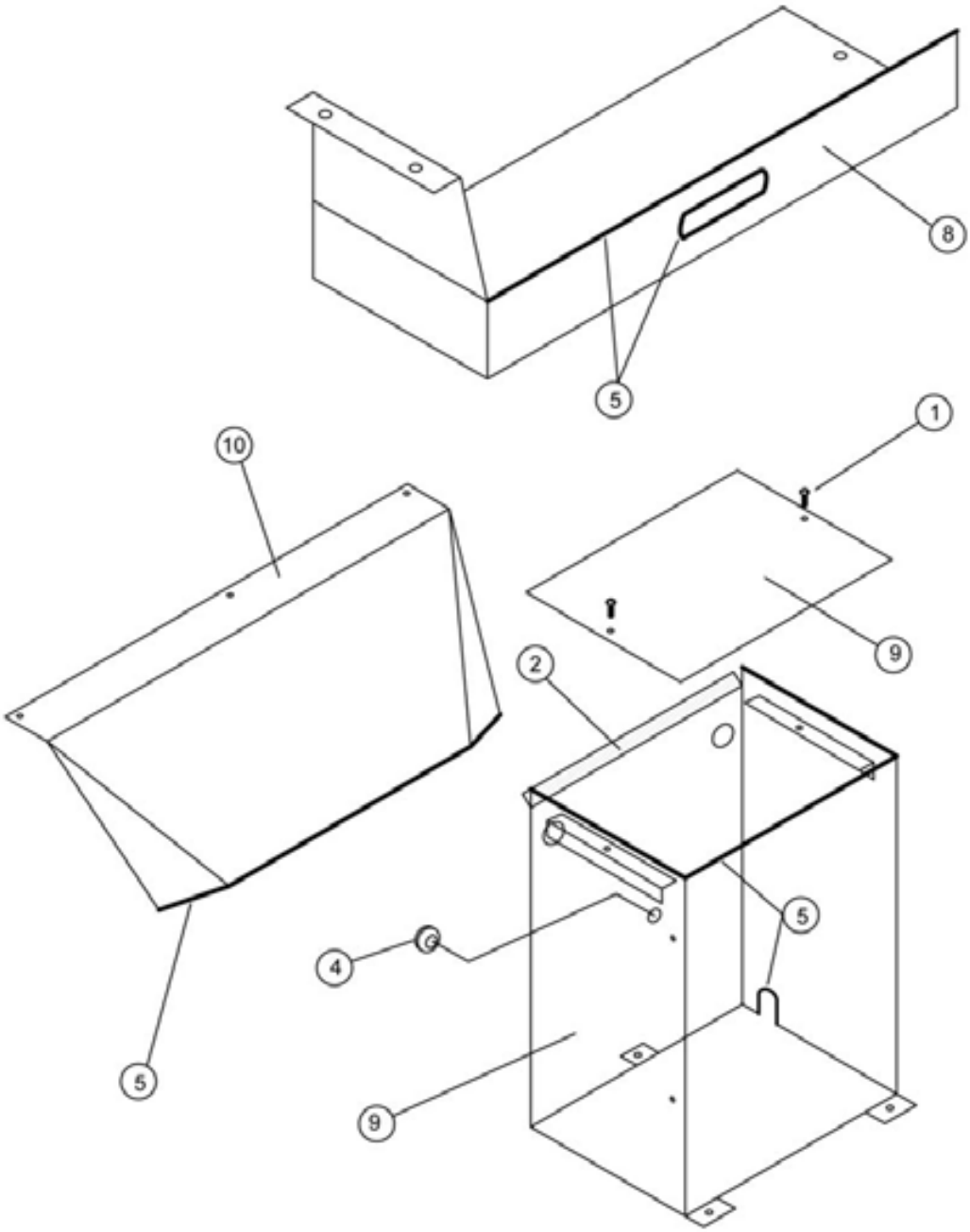
P.T.I.



POST THERMAL INCREASE (P.T.I.)

REF	PART NO.	DESCRIPTION	NOTES:
1	405-620	CS, 1/4 x 3/4 SS(Hex HD)	
2	415-025	LW, 1/4 SS	
3	415-125	FW, 1/4 SS	
4	490-150	Post Heat Coil	
5	551-005	Valve, Press. Limiter - 1000 PSI (Kingston)	
6	555-024	Bushing, 3/8 M x 1/4 F	
7	555-115	Comp. FTG 5/8T x 3/8NPT 90	
8	555-208	Elbow 90, 1/4" Street Extruded	
9	555-512	Reducing ADPT, 3/8 FPT x 1/4 MPT	
10	555-636	Tee, 1/4" Street Extruded	
11	555-640	Tee, 3/8" FPT.	
12	572-042	Solution hose, 1/4” Blue Neptune HP	
13	572-145	Solution hose, 3/8” Blue Neptune HP	
14	572-166	Formed Hose 3” Curved	
15	580-120	Q.C. 1/4 Female (Open)	
16	580-125	Q.C. 1/4 Male (Open)	
17	581-015	Crimp Fitting, 1/4 HP Hose – 1/4 MPT SVL	
18	581-055	Crimp Fitting, 3/8 Pulse Hose, 3/8 MPT SVL	
19	581-065	Crimp Fitting, 3/8 Pulse Hose, 1/4 MPT SVL	
20	582-009	Elbow 90, 3” x 3”	
21A	845-016	Adapter Plate (45 PTI)	
21B	845-017	Adapter Plate (47 PTI)	
21C	845-018	Adapter Plate (56 PTI)	

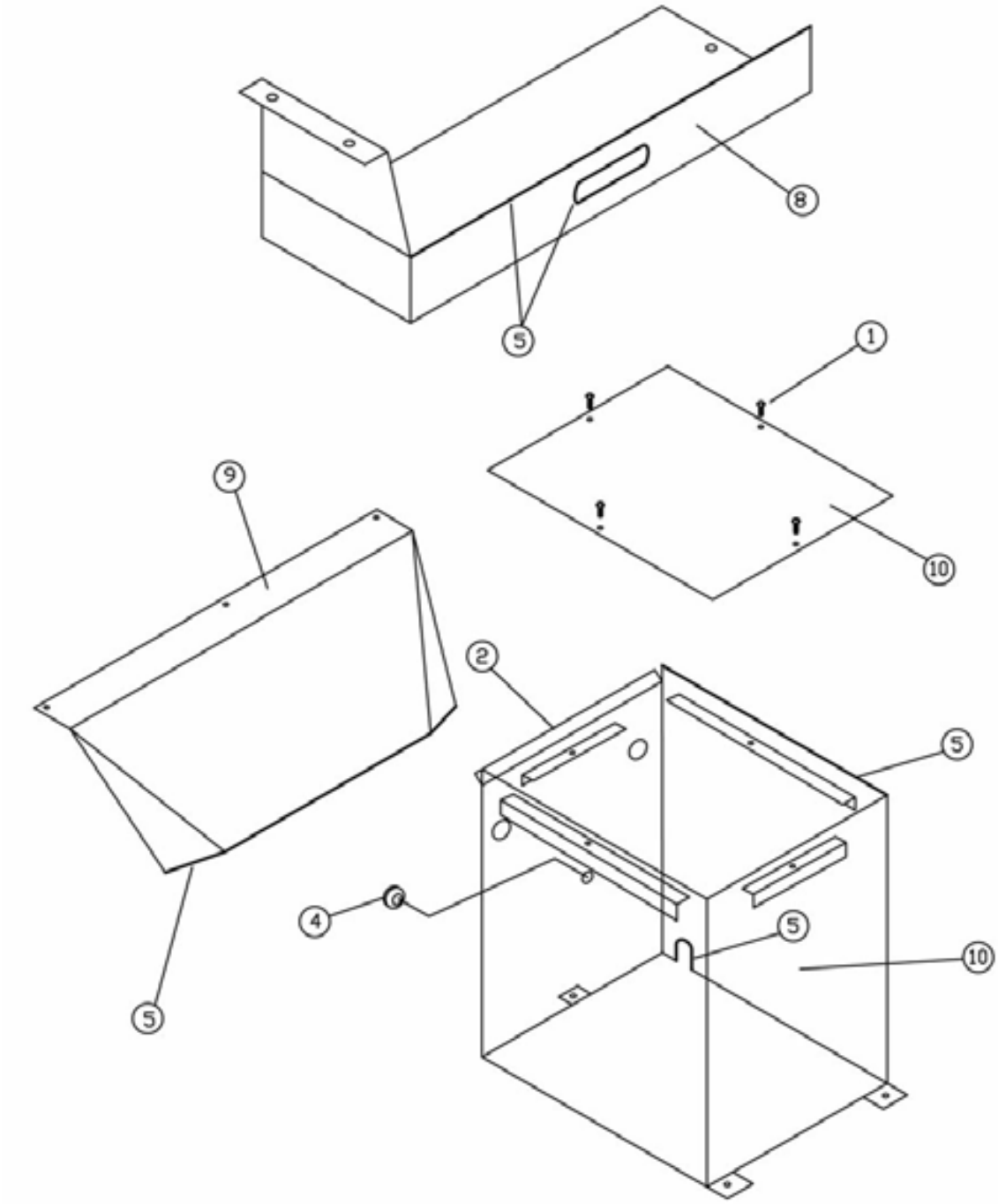
COVER HOLDER KIT



COVER & HOLDER KIT

REF	PART NO.	DESCRIPTION	NOTES:
1	410-130	MS, 8-32 x 1/2 Pan Phil SS	
2	475-100	Gasket, channel	
3	478-010	Insulation, Heat Exchanger Cover	Not Shown
4	498-035	Grommet, Rubber 11/16	
5	499-005	Trim 1/2 Black	
6	703-225	Decal, Warning – Rotating Machinery	Not Shown
7	703-420	Decal, Compact	Not Shown
8	845-271	Tank Shelf	
9	845-275	Cover, heat Exch Dual	
10	845-285	Cover, Transition	
11	845-300	Holder, Clipboard Holder	

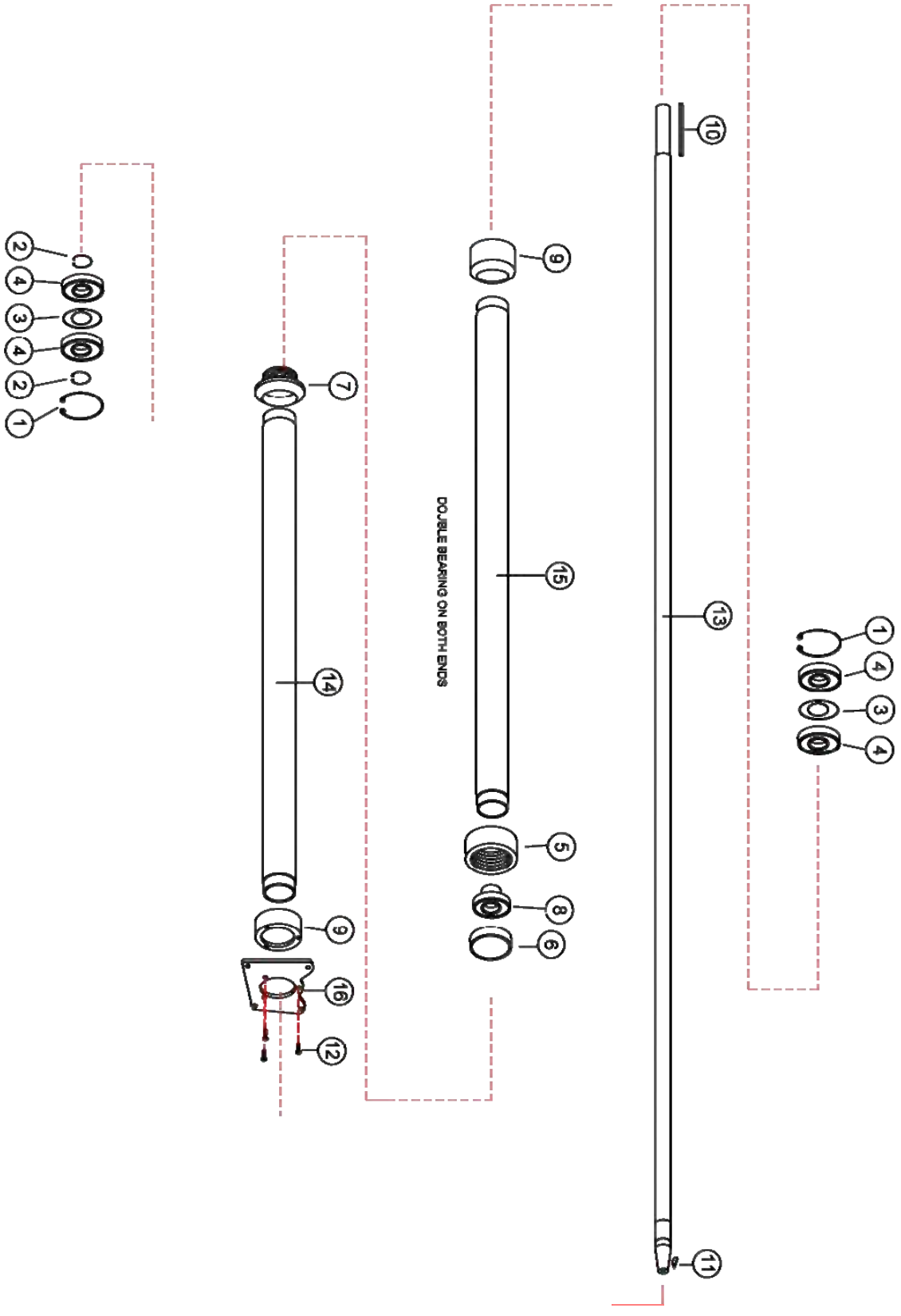
COVER & HOLDER KIT QUAD HEAT EXCHANGER (OPTIONAL)



COVER HOLDER KIT QUAD HEAT EXCHANGER OPTIONAL

REF	PART NO.	DESCRIPTION	NOTES:
1	410-130	MS, 8-32 x 1/2 Pan Phil SS	
2	475-100	Gasket, channel	
3	478-010	Insulation, Heat Exchanger Cover	Not Shown
4	498-035	Grommet, Rubber 11/16	
5	499-005	Trim 1/2 Black	
6	703-225	Decal, Warning – Rotating Machinery	Not Shown
7	703-405	Decal, Cleanco	Not Shown
8	845-271	Tank Shelf	
9	845-285	Cover, Transition	
10	845-290	Cover, Heat Exch. (Quad)	

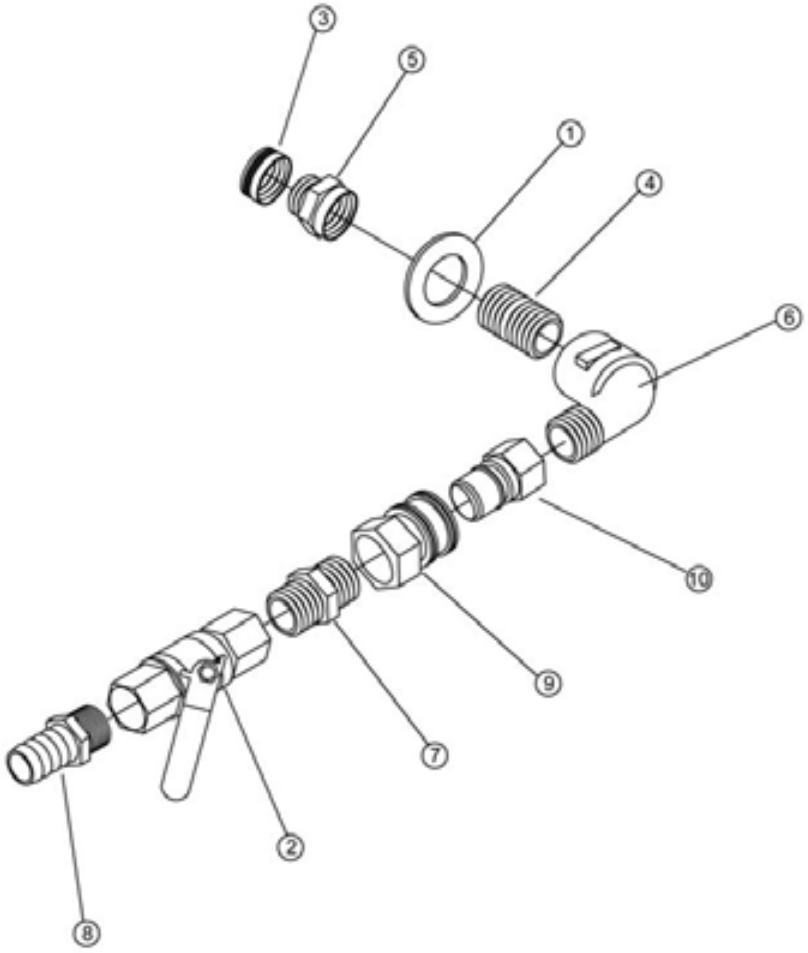
PTO SHAFT



PTO SHAFT ASSEMBLY

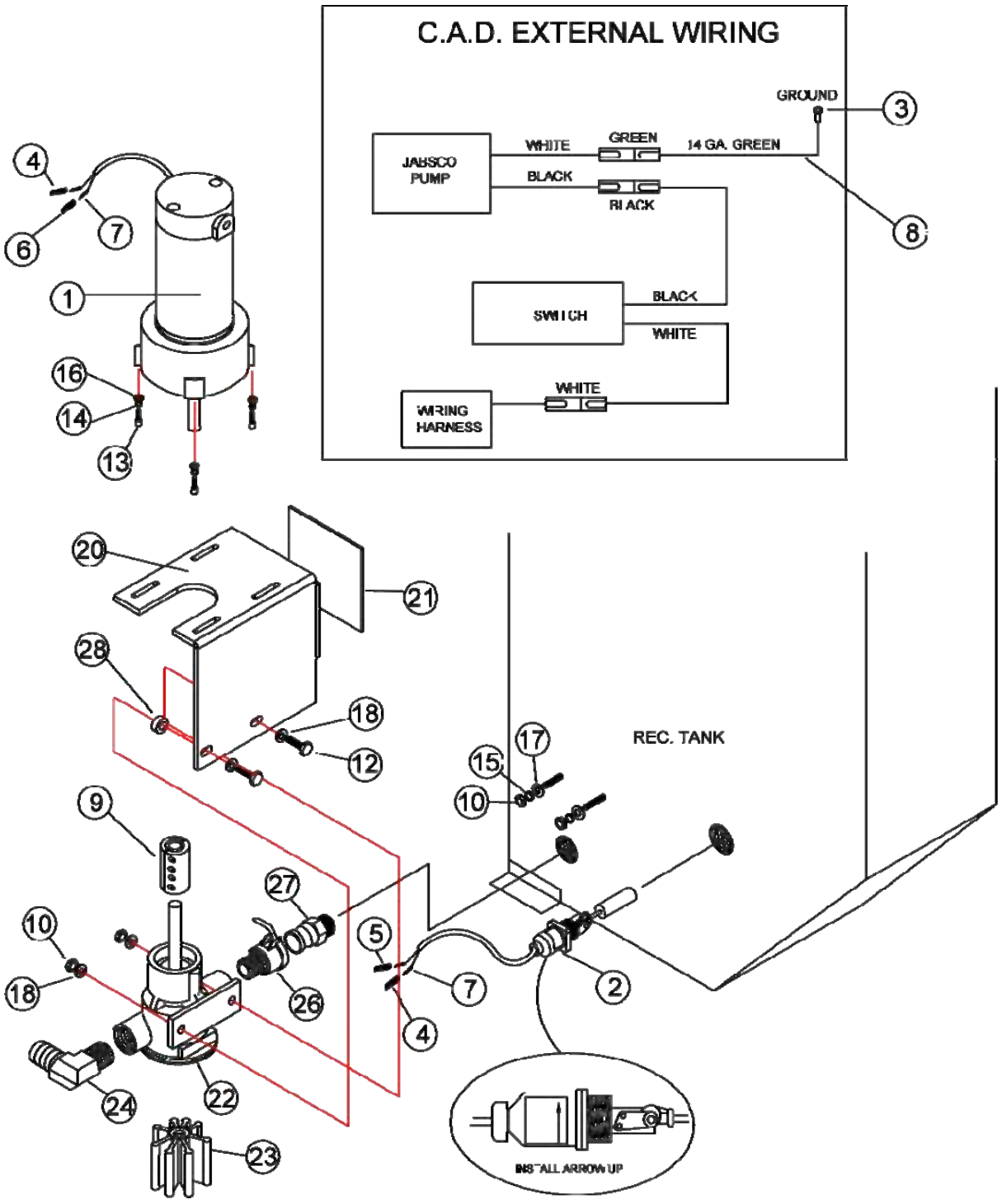
REF	PART NO.	DESCRIPTION	NOTES:
1	380-210	Snap Ring, CR200	
2	380-215	Snap Ring, CS100	
3	380-220	Shim, PTO Bearing	
4	380-225	Bearing, PTO	
5	380-506	Centre FM coupling	
6	380-507	Centre Bearing Housing	
7	380-508	Centre M Coupling	
8	380-510	Bearing, Radial Centre (2.05) - TO	
9	380-511	Bearing Housing (Double) End	
10	380-550	Keystock, 1/4”	
11	380-551	Key, 5/32 x 5/8	
12	410-226	MS, 14-20 x 3/4 FH Soc	
13A	835-958	PTO Shaft Inner VR2 58.6	
13B	835-960	PTO Shaft Inner VR2 60.6	
13C	835-962	PTO Shaft Inner VR2 62.6	
13D	835-964	PTO Shaft Inner VR2 64.6	
13E	835-967	PTO Shaft Inner VR2 67.6	
13F	835-970	PTO Shaft Inner VR2 70.6	
13G	835-975	PTO Shaft Inner VR2 75.6	
14	840-935	PTO HSG, Front VR2 35”	
15A	840-958	PTO HSG, Rear VR2 23.6”	
15B	840-960	PTO HSG, Rear VR2 25.6”	
15C	840-962	PTO HSG, Rear VR2 27.6”	
15D	840-964	PTO HSG, Rear VR2 29.6”	
15E	840-967	PTO HSG, Rear VR2 32.6”	
15F	840-970	PTO HSG, Rear VR2 35.6”	
15G	840-975	PTO HSG, Rear VR2 40.6”	
16	845-325	Clutch Plate	

CAD PANEL MOUNT OPTION



REF	PART NO.	DESCRIPTION	NOTES:
1	415-195	FW, 1” S.S.	
2	545-035	Ball Valve 3/4"	
3	555-025	Cap Nut	
4	555-079	Close Nipple 3/4 short	
5	555-144	Coupling, M.Hose to 3/4" FTP	
6	555-222	Elbow 90, 3/4" Street Forged	
7	555-278	Hex Nipple 3/4"	
8	555-400	Hose Barb, 1 Barb x 3/4 MPT	
9	580-170	Q.C 3/4 FEM. (Open)	
10	580-175	Q.C 3/4 Male (Open)	

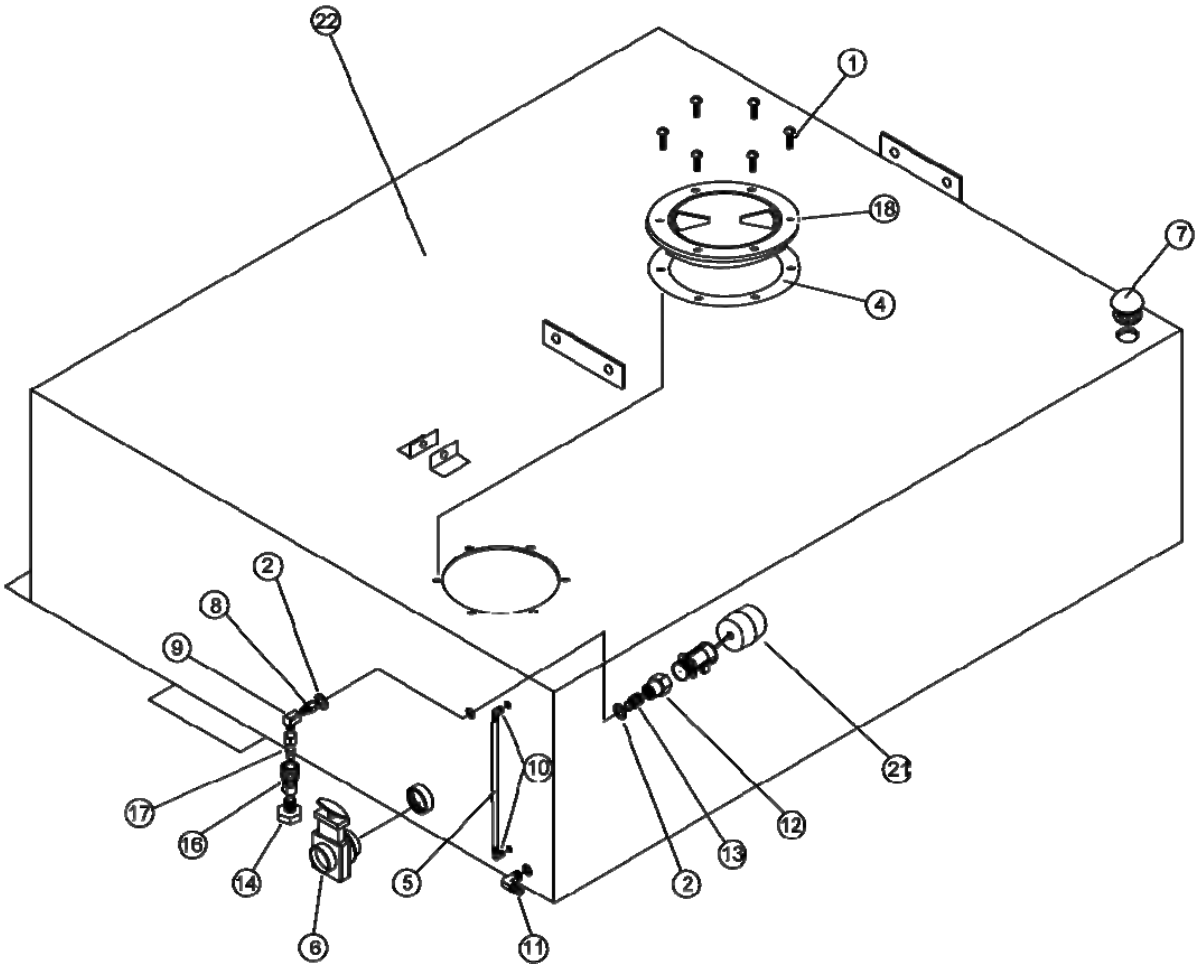
C.A.D. EXTERNAL OPTION



C.A.D. EXTERNAL PARTS LIST

REF	PART NO.	DESCRIPTION	NOTES:
1	300-065	Motor, 12 volt DC Gear	
2	305-105	Switch, External C.A.D.	
3	325-205	Terminal Ring 1/4 Blue	
4	325-300	Power Lock Terminal - Black	
5	325-310	Power Lock Terminal - White	
6	325-315	Power Lock Terminal - Green	
7	325-320	Power Lock Insert	
8	330-230	Wire 14 GA. Green	
9	380-518	Coupling Shaft 3/4 x 5/8	
10	400-015	Nut, 3/8 x 16 Zinc	
11	400-100	Locknut, 3/8 x 16 Nylon Zinc	
12	405-115	Bolt, 3/8 x 1 1/2 GR5 Zinc	
13	405-452	Bolt, 1/4 x 3/4 soc NF	
14	415-025	LW, 1/4 SS	
15	415-030	LW, 3/8 Zinc	
16	415-125	FW, 1/4 SS	
17	415-130	FW, 3/8 Zinc	
18	415-135	FW, 3/8 SS	
19	425-010	Clamp, #20	Not Shown
20	465-046	Bracket, External C.A.D.	
21	475-070	Gasket, 1/8” x 10”	
22	525-025	JABSCO Pump	
23	525-026	Pump Impeller	
24	555-335	Hose Barb 90, 1” Barb x 1” MPT	
25	572-157	Polyspring Hose 1”	Not Shown
26	580-300	Q.C. Cam-lock FM	
27	580-305	Q.C. Cam- lock M	
28	906-109	Spacer, JABSCO Pump	

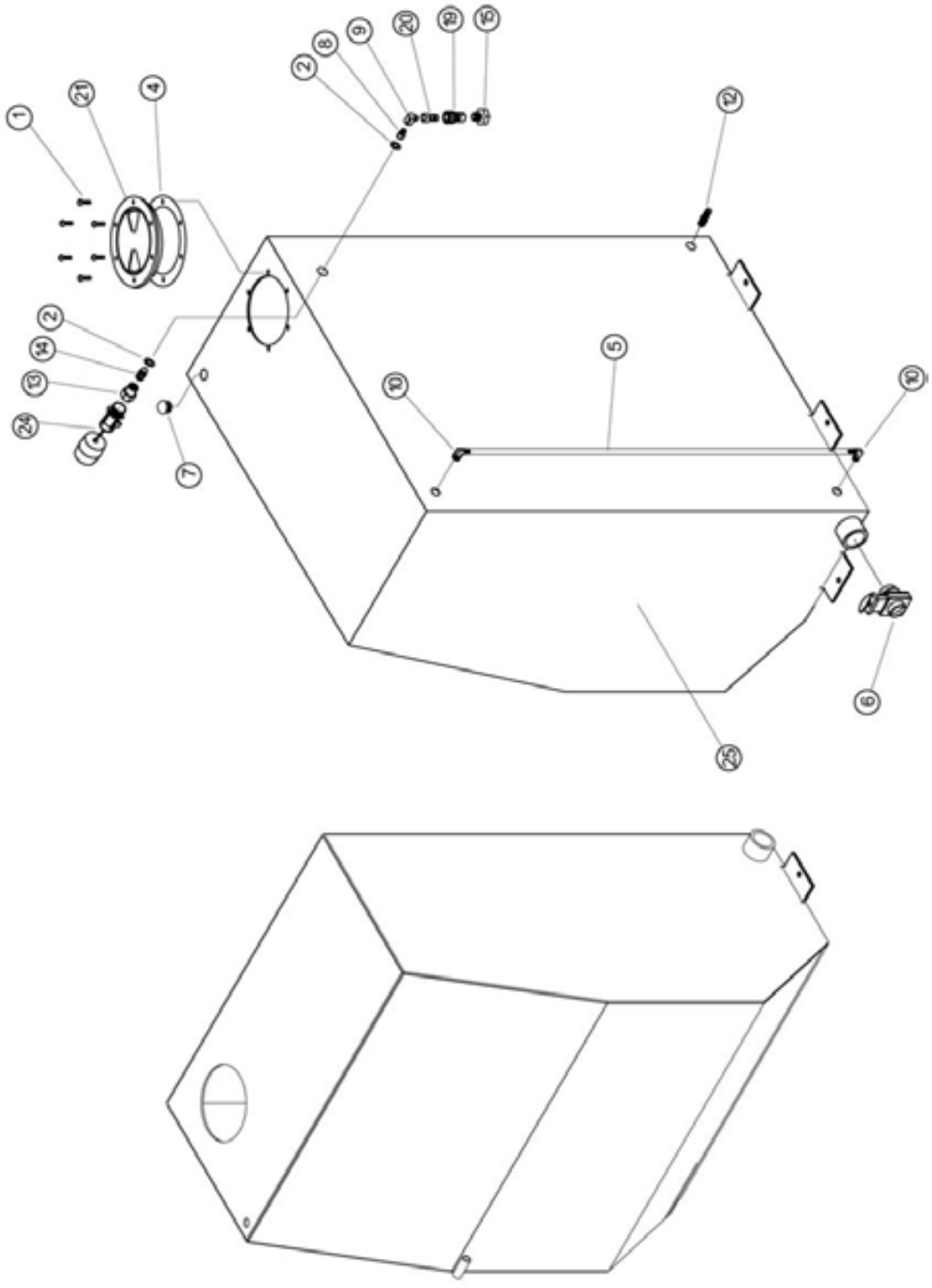
HORIZONTAL F/W TANK 100GAL



HORIZONTAL F/W TANK 100GAL

REF	PART NO.	DESCRIPTION	NOTES:
1	410-135	MS, 8 - 32 x 3/4 Pan Head S.S.	
2	415-165	FW, 5/8 SS	
3	425-005	Clamp, #8 Hose 1/2 x 1	Not Shown
4	475-125	Gasket, 6" Access Cover	
5	480-010	PVC Tubing, 1/4" ID Clear	
6	545-100	Dump Valve, 1 1/2" (Flange-MPT)	
7	550-004	Air Valve 1"	
8	555-004	Adpt, 3/8 M x 3/8 F	
9	555-214	Elbow 90, 3/8" Street Extruded	
10	555-322	Hose Barb 90, 1/4 Barb x 1/4 MPT	
11	555-330	Hose Barb 90, 5/8 Barb x 3/8 MPT	
12	555-516	Reducing Adpt, 3/4 MPT x 1/2 F	
13	555-544	Reducing Nipple, 1/2 MPT x 3/8 MPT	
14	555-605	Swivel, 3/8 MPT x F SVL	
15	555-670	Washer, - Cap Nut	
16	580-130	Q.C. 3/8" Fem (Closed)	
17	580-135	Q.C. 3/8" Male (Closed)	
18	585-210	Clear Cover, 6" C/W Ring	
19	588-020	ABS Elbow 45, 1 1/2" SLP x SLP	Not Shown
20	595-005	ABS Pipe, 1 1/2"	Not Shown
21	597-065	Valve, Diaphragm	
22	860-257	F/W Tank, Horizontal 100 Gal	

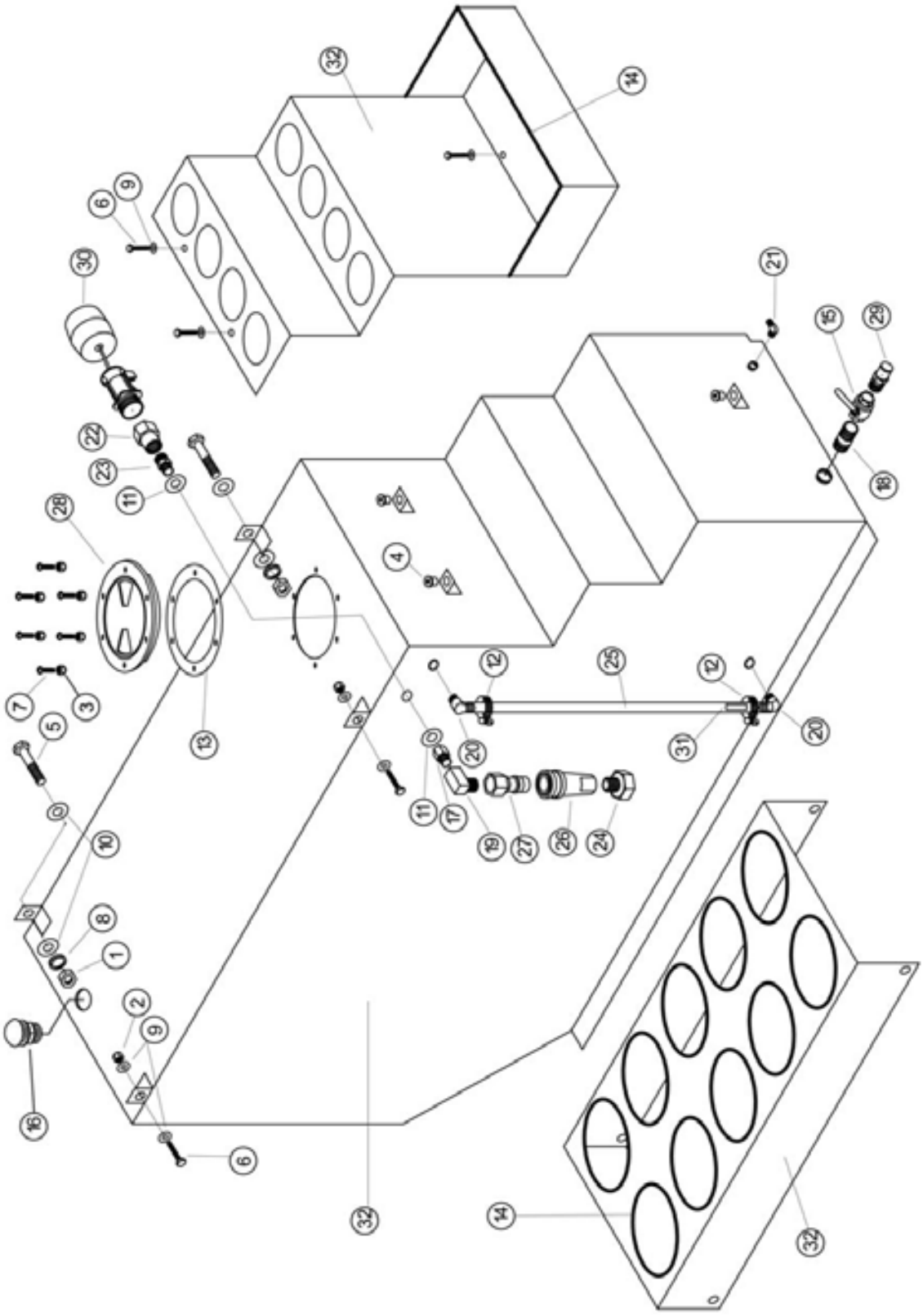
STOUT F/W TANK 120 GAL



STOUT F/W TANK 120 GAL

REF	PART NO.	DESCRIPTION	NOTES:
1	410-135	MS, 8 - 32 x 3/4 Pan Head S.S.	
2	415-165	FW, 5/8 SS	
3	425-005	Clamp, #8 Hose 1/2 x 1	Not Shown
4	475-125	Gasket, 6" Access Cover	
5	480-010	PVC Tubing, 1/4" ID Clear	
6	545-100	Dump Valve, 1 1/2" (Flange-MPT)	
7	550-004	Air Valve 1"	
8	555-004	Adpt, 3/8 M x 3/8 F	
9	555-214	Elbow 90, 3/8" Street Extruded	
10	555-322	Hose Barb 90, 1/4 Barb x 1/4 MPT	
11	555-330	Hose Barb 90, 5/8 Barb x 3/8 MPT	
12	555-390	Hose Barb, 5/8 Barb x 3/8 MPT	Not Shown
13	555-516	Reducing Adpt, 3/4 MPT x 1/2 F	
14	555-544	Reducing Nipple, 1/2 MPT x 3/8 MPT	
15	555-605	Swivel, 3/8 MPT x F SVL	
16	555-670	Washer, - Cap Nut	Not Shown
17	572-136	Heater Hose, 5/8 Blue	Not Shown
18	579-010	Cuff, 1 1/2" Hose SVL White	Not Shown
19	580-130	Q.C. 3/8" Fem (Closed)	
20	580-135	Q.C. 3/8" Male (Closed)	
21	585-210	Clear Cover, 6" C/W Ring	
22	590-020	PVC Elbow 1 1/2" 90, S x FIPT	Not Shown
23	590-405	PVC Hose Barb 1 1/2" x MPT	Not Shown
24	597-065	Valve, Diaphragm	
25	860-257	F/W Tank, Stout 120 GAL	

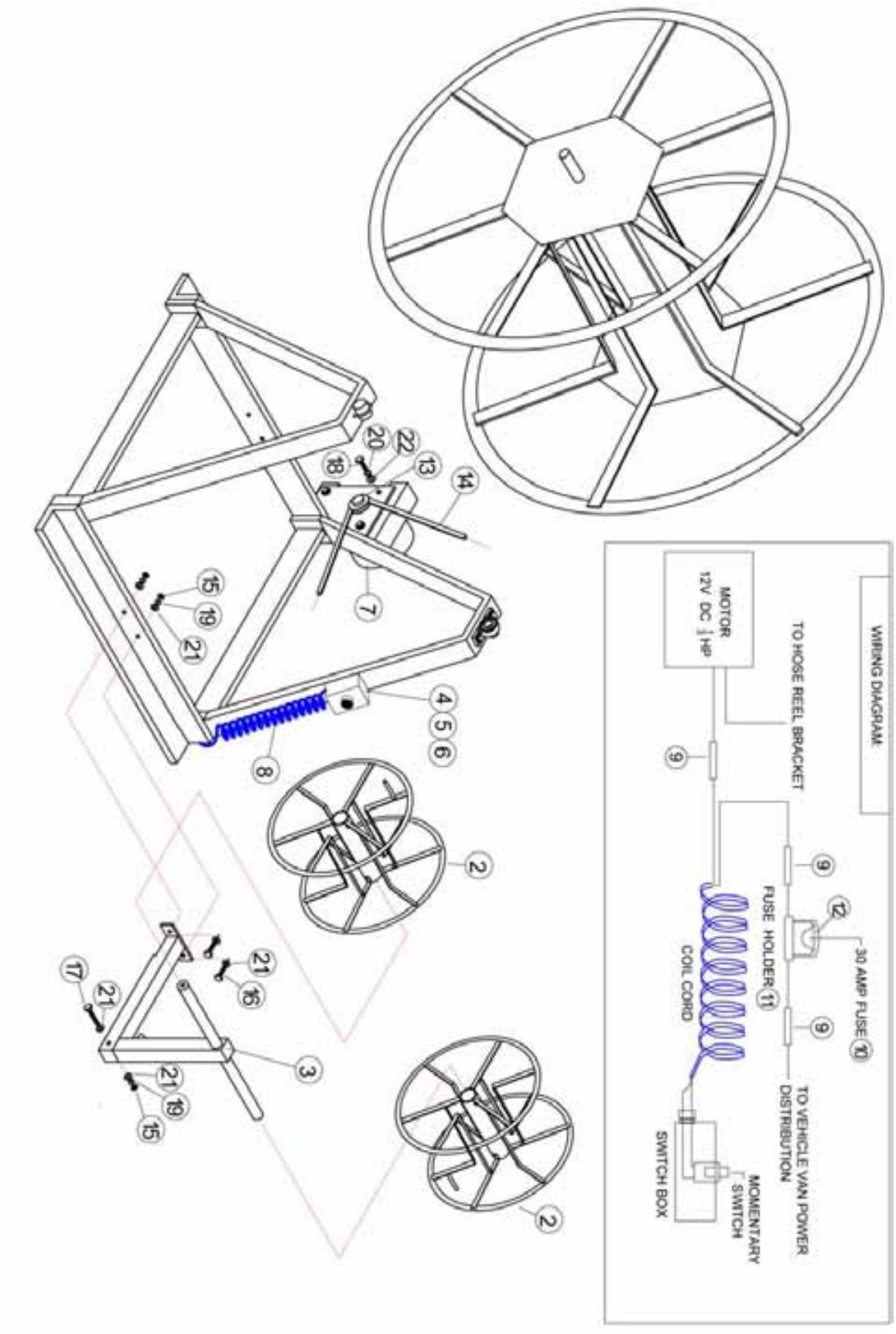
F/W TANK AQUA STORAGE



F/W TANK AQUA STORAGE

REF	PART NO.	DESCRIPTION	NOTES:
1	400-015	Nut, 3/8 x 16 Zinc	
2	400-115	Locknut, 1/4 x 20 Nylon SS	
3	400-125	Locknut, 8 x 32 Nylon SS	
4	400-250	Well Nut,1/4 x 20 Neoprene	
5	405-132	Bolt, 3/8 x 2 SS	
6	405-620	CS, 1/4 x 3/4 SS	
7	410-135	MS, 8-32 X 3/4 Pan Head SS	
8	415-030	LW, 3/8 Zinc	
9	415-125	FW, 1/4 SS	
10	415-135	FW, 3/8 SS	
11	415-165	FW, 5/8 SS	
12	425-115	Clamp, Hose Silicone	
13	475-125	Gasket, 6" Access Cover - Clear	
14	499-005	Trim, 1/2" Black	
15	545-036	Ball Valve 1"	
16	550-004	Air Valve 1”	
17	555-004	ADPT, 3/8 M x 3/8 F	
18	555-080	Close Nipple 1"	
19	555-214	Elbow 90, 3/8" Street Extruded	
20	555-324	H. Barb 90, 3/8 Barb x 1/4 MPT	
21	555-330	H. Barb 90, 5/8 Barb x 3/8 MPT	
22	555-516	Red. ADPT, 3/4 MPT x 1/2 F	
23	555-544	Red. Nipple, 1/2 MPT x 3/8 MPT	
24	555-605	Swivel, 3/8 MPT x F SVL	
25	572-106	Clear Hose, 1/2 ID	
26	580-130	Q.C. 3/8" FEM (Closed)	
27	580-135	Q.C. 3/8" MALE (Closed)	
28	585-210	Clear Cover, 6" C/W Ring	
29	590-404	PVC Hose Barb 1"	
30	597-065	Valve, Diaphragm - Auto Fill	
31	597-075	Float, Plastic Site	
32	860-305	F/W Tank, C/W Holders	

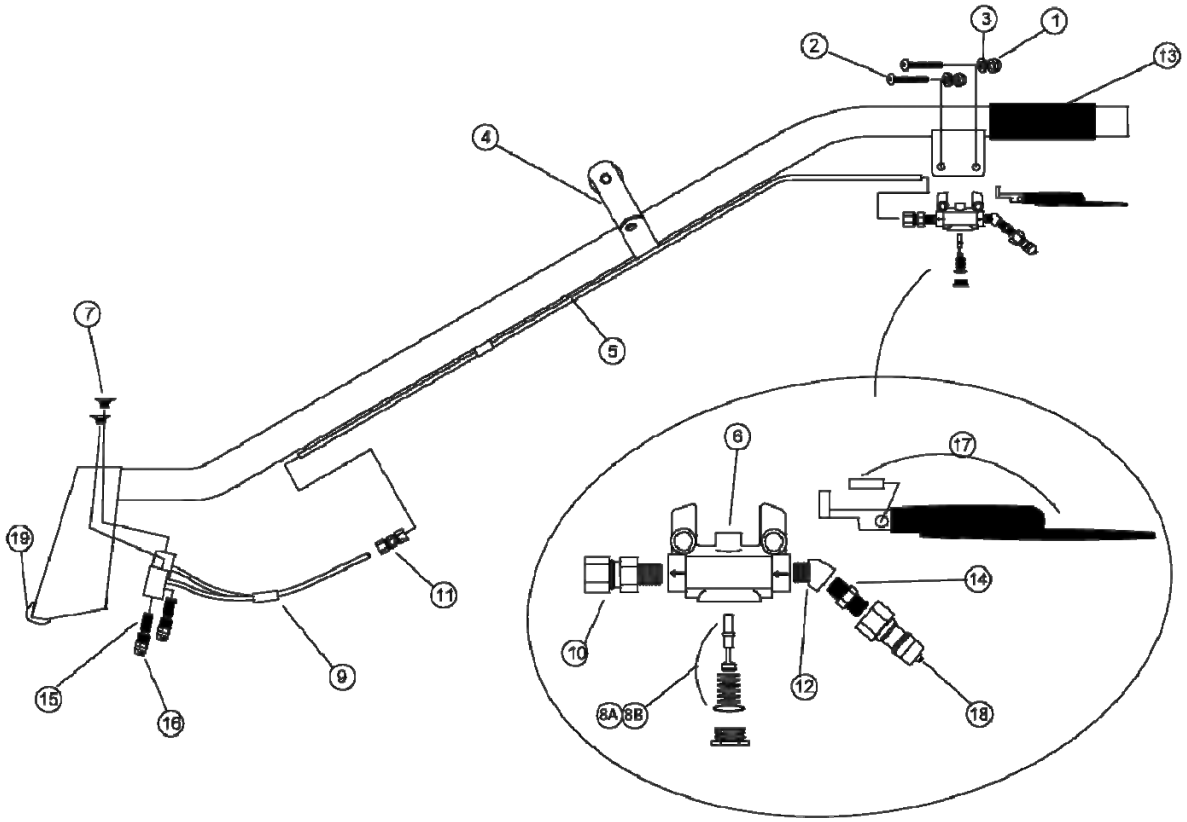
ELECTRIC HOSE REEL SET



ELECTRIC HOSE REEL SET

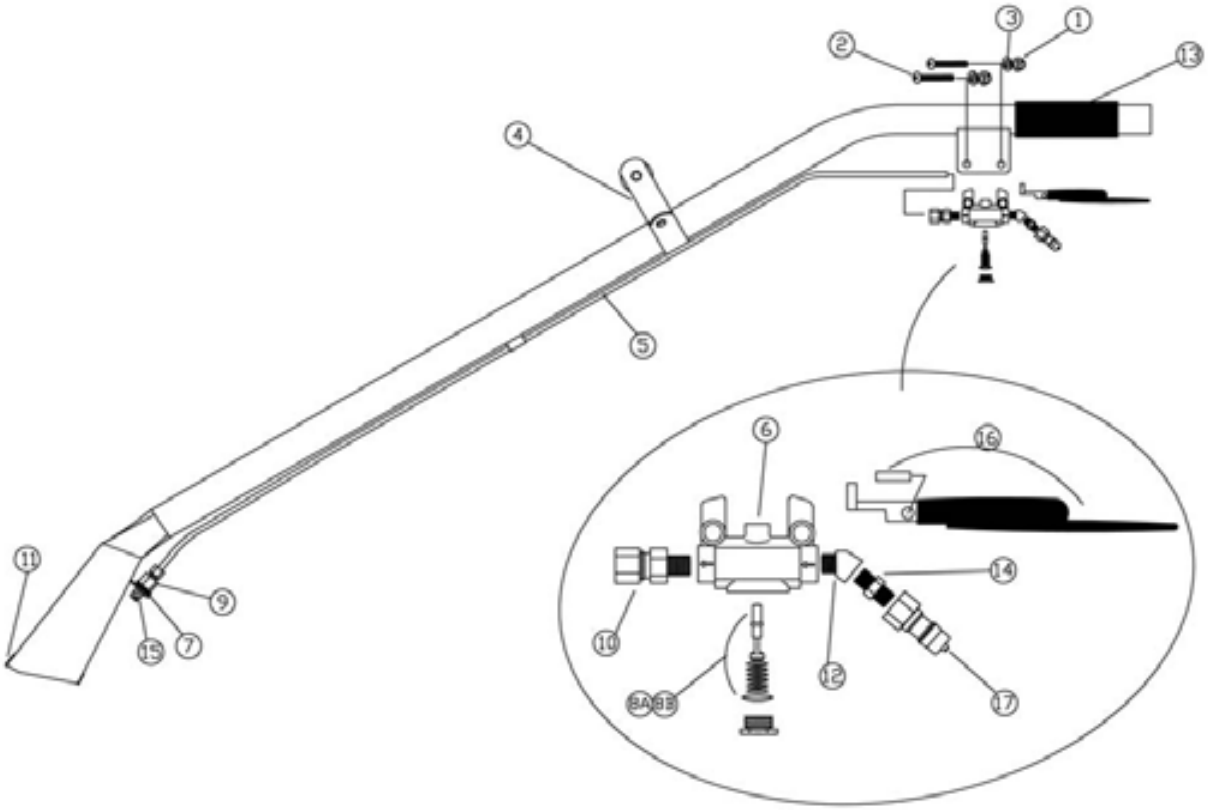
REF	PART NO.	DESCRIPTION	NOTES:
1	235-030	Hose Reel Set (vac & Solution)	
2	235-015	Solution Hose Reel	
3	235-150	Stand dual solution Reel	
4	620-412	Switch Box ASSY	
5	305-945	Switch Box Cover	
6	305-950	Switch Momentary	
7	300-060	Motor, 12V DC 1/3HP	
8	315-100	Cord, Coil 10’	
9	325-010	Connector, Butt -Yellow	
10	340-105	Fuse 30 Amp	
11	345-105	Fuse Holder	
12	345-115	Fuse Holder Cover	
13	385-149	Pulley, AK20 5/8	
14	397-110	Belt A114	
15	400-015	Nut, 3/8 x 16 Zinc	
16	405-110	Bolt, 3/8 x 1 1/4 GR5 Zinc	
17	405-185	Bolt, 3/8 x 3 GR2 Zinc All thread	
18	405-210	Bolt, 5/16 x 1 GR5 Zinc	
19	415-030	LW, 3/8 Zinc	
20	415-040	LW, 5/16 Zinc	
21	415-130	FW, 3/8 Zinc	
22	415-200	FW, 5/16 Zinc	

CLEANCO 2 – JET WAND (250-055)



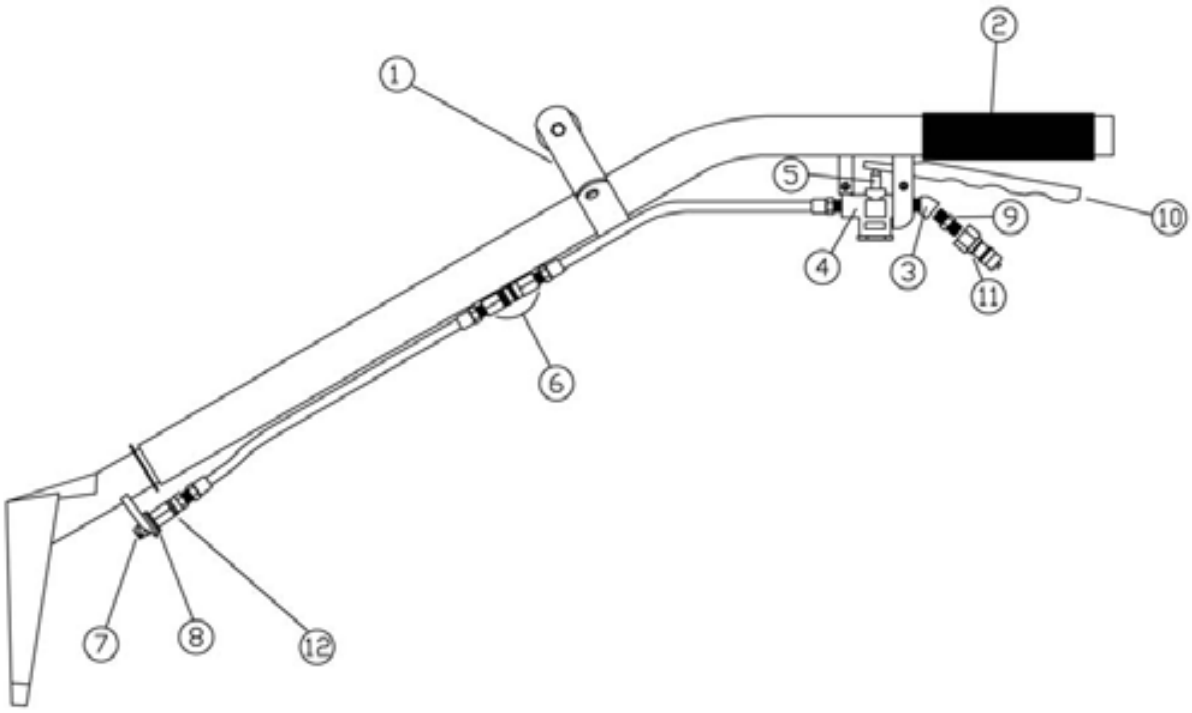
REF	PART NO.	DESCRIPTION	NOTES:
1	400-210	Acorn nut, 1/4 x 20 Zinc	
2	410-015	MS, 1/4 x 1 3/4 RH Rob Zinc	
3	415-020	LW, 1/4 Zinc	
4	435-030	D Handle	
5	480-200	Tubing, 1/4 O.D S.S	
6	535-020	Valve, Para Plate	
7	538-421	Machine Screw	
8A	539-005	Repair Kit	
8B	539-010	Seal Kit	
9	553-105	Manifold 2 jet	
10	555-108	Comp Fitting 1/4 x 1/4 MPT	
11	555-116	Comp Union Coupling 1/4 x 1/4	
12	555-184	Elbow 45, Street 1/4"	
13	555-200	Vinyl Grip 1 1/2" x 6” Black	
14	555-272	Hex Nipple, 1/4"	
15	560-005	Screen, 1/4" Vee Jet	
16	561-130	Vee jet, 1/4" 110015 S.S	
17	566-032	Trigger, Paraplate	
18	580-015	Q.C 1/4" Male (Closed)	
19	552-040	Wand glide	

CLEANCO SINGLE – JET WAND (250-065)



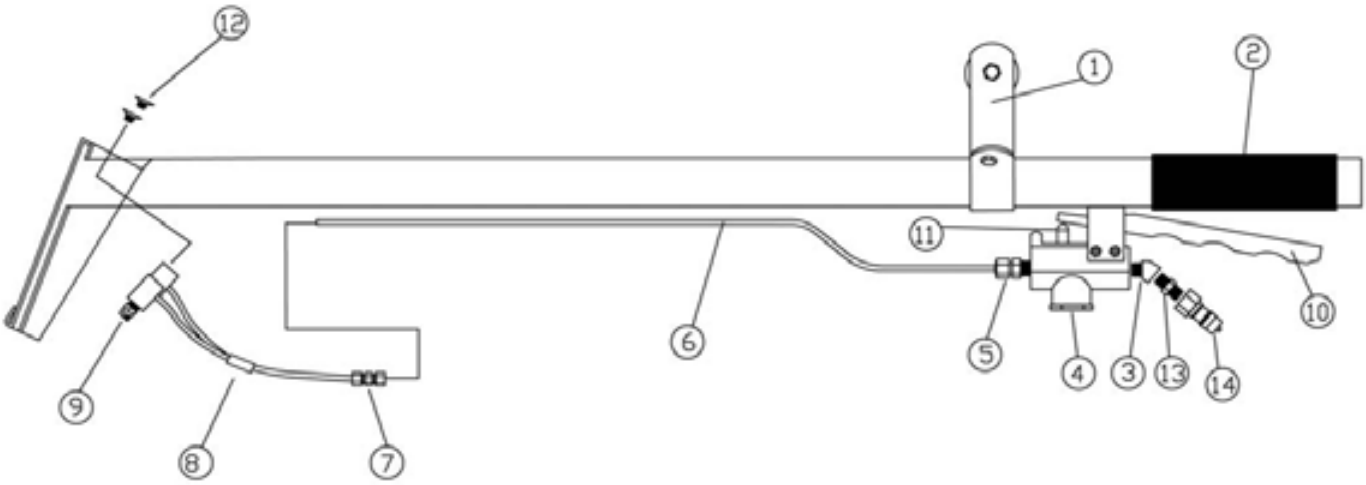
REF	PART NO.	DESCRIPTION	NOTES:
1	400-210	Acorn nut, 1/4 x 20 Zinc	
2	410-015	MS, 1/4 x 1 3/4 RH Rob Zinc	
3	415-020	LW, 1/4 Zinc	
4	435-030	D Handle	
5	480-200	Tubing, 1/4 O.D S.S	
6	535-020	Valve, Para Plate	
7	538-322	Spacer, Jet (ABS)	
8A	539-005	Repair Kit	
8B	539-010	Seal Kit	
9	555-912	1/4 PT x 1/4 Compression Fitting	
10	555-108	Comp Fitting 1/4 x 1/4 MPT	
11	552-025	Wand Glides	
12	555-184	Elbow 45, Street 1/4"	
13	555-200	Vinyl Grip 1 1/2" x 6” Black	
14	555-272	Hex Nipple, 1/4"	
15	561-110	Vee Jet 11003	
16	566-032	Trigger, Paraplate	
17	580-015	Q.C 1/4" Male (Closed)	

30”SWIVEL STAIR TOOL (255-110)



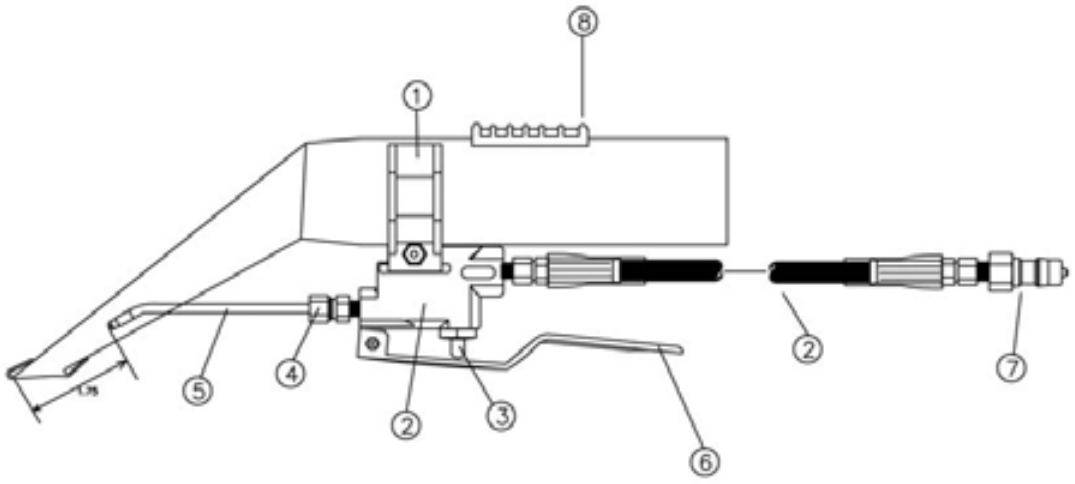
REF	PART NO.	DESCRIPTION	NOTES:
1	435-030	D Handle	
2	555-200	Vinyl Grip 1 1/2" x 6” Black	
3	555-184	Elbow 45, Street 1/4"	
4	535-110	Valve ASSY	
5	538-110	Valve Repair Kit	
6	580-117	QC 1/8 Male & Female (Close)	
7	561-075	9503 Vee Jet	
8	538-322	Spacer, Jet (538-322)	
9	555-272	Hex Nipple 1/4	
10	566-015	Handle Cast Alum	
11	580-015	Q.C 1/4 Male (close)	
12	582-079	Swivel, 1/4 FM x 1/4 FM	

40”STAIR TOOL (255-115)
SPECIAL ORDER



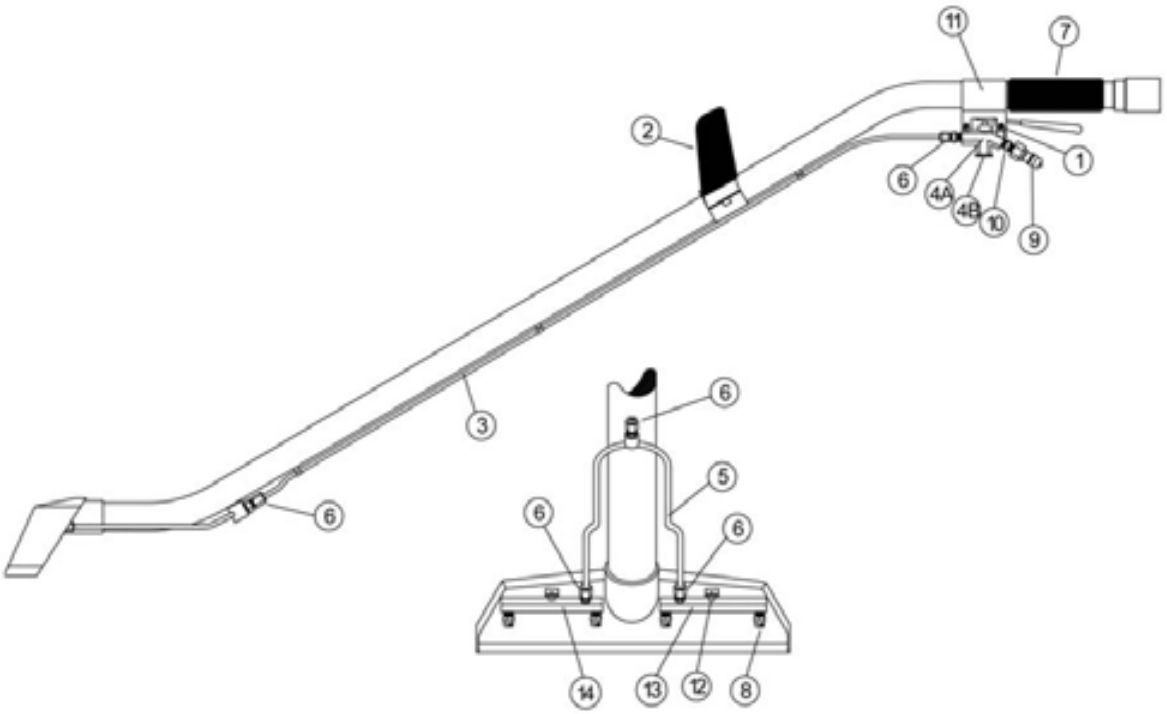
REF	PART NO.	DESCRIPTION	NOTES:
1	435-030	D Handle	
2	555-200	Vinyl Grip 1 1/2" x 6” Black	
3	555-184	Elbow 45, Street 1/4"	
4	535-115	Valve ASSY	
5	555-108	Comp Fitting 1/4 x 1/4 MPT	
6	480-200	Tubing, 1/4 O.D S.S (18”)	
7	555-116	1/4 x 1/4 Comp Fitting	
8	553-105	Y Manifold	
9	561-110	Vee Jet 11003	
10	566-015	Handle Cast Alum	
11	538-110	Valve Repair Kit	
12	538-421	Machine Screw	
13	555-272	Hex Nipple 1/4	
14	580-015	Q.C 1/4 Male (close)	

HAND TOOL (VR) NO DRIP 3” (255-070)



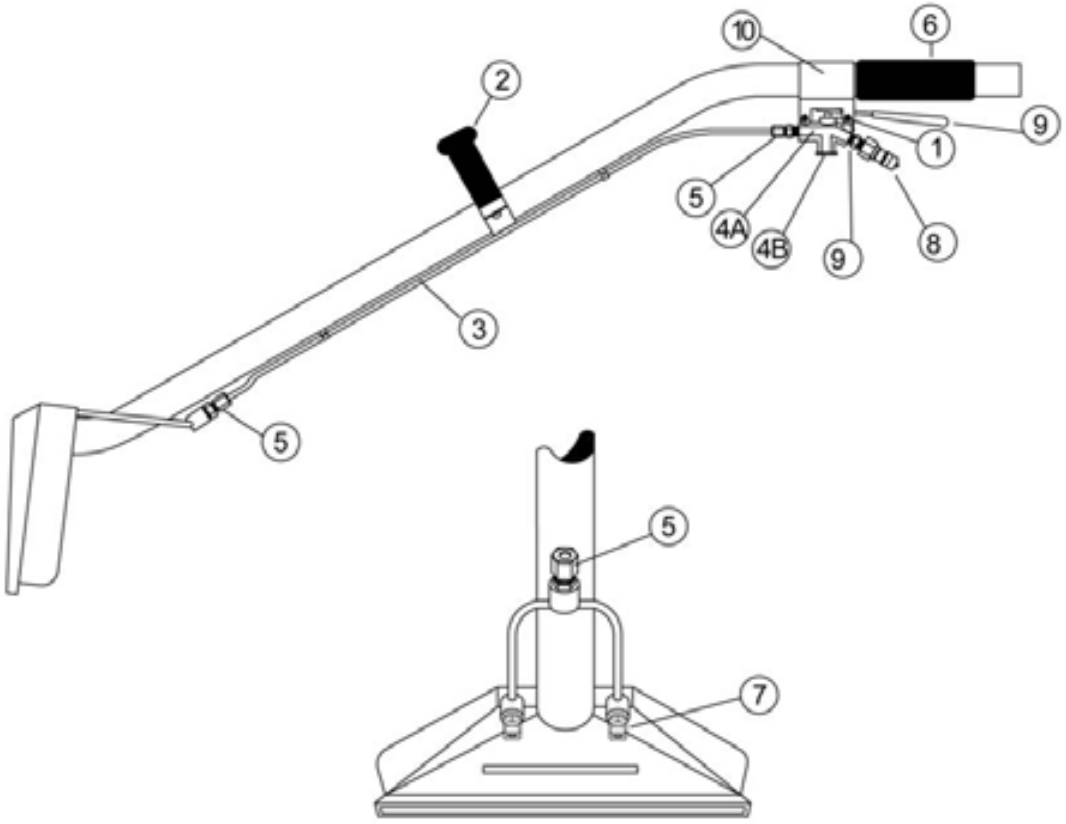
REF	PART NO.	DESCRIPTION	NOTES:
1	538-205	Valve Hanger	
2	535-105	Valve ASSY	
3	538-025	Valve Repair kit	
4	555-106	1/8” x 1/4" Comp Fitting	
5	562-100	Tee Jet 11002	
6	564-250	Jet Retainer Plate & Hardware	
7	566-020	Handle Detailer	
8	580-015	Q.C 1/4 Male (close)	

WAND 1-3/4 S-BEND 4-JET (250-017)



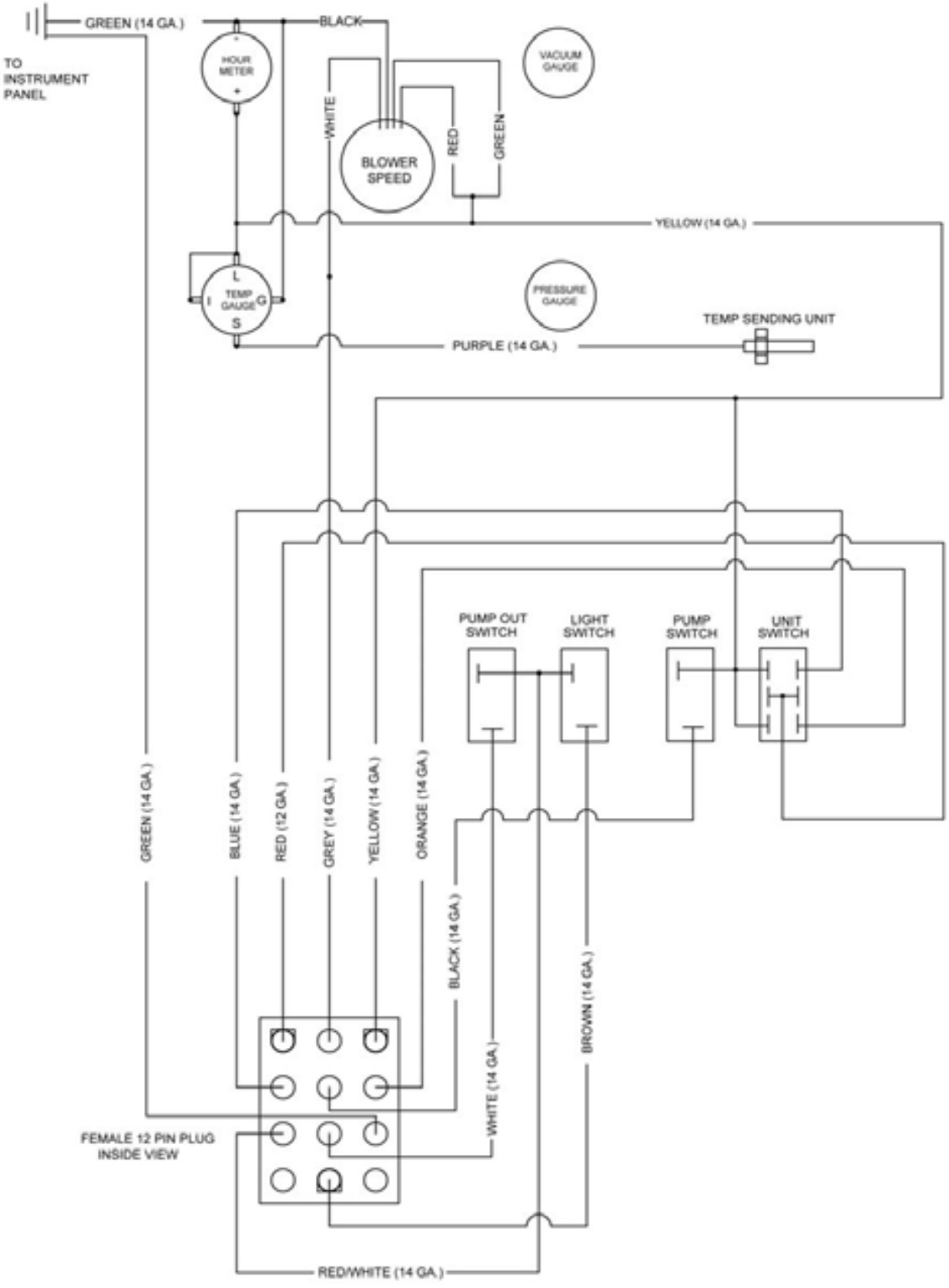
REF	PART NO.	DESCRIPTION	NOTES:
1	400-148	Locknut 4 x 40 Nylon S.S	
2	435-022	Handle, Wand 1-3/4 Tube	
3	480-200	Tubing 1/4 S.S	
4A	535-011	Valve Angle (c/w trigger)	
4B	540-015	Repair kit	
5	564-060	Manifold 2 jet S-Bend	
6	555-108	Comp Fitting 1/4 x 1/4	
7	553-201	Vinyl Grip, 1-3/4 x 6	
8	561-003	Vee Jet (9501)1/8	
9	580-015	Q.C 1/4" Male (Closed)	
10	555-572	Hex Nipple, 1/4"	
11	538-221	Valve Hanger 1-3/4, Angle Valve	
12	410-100	Screw	
13	564-065	Manifold Left	
14	564-070	Manifold Right	

STAIR TOOL 36” S-BEND (255-116)



REF	PART NO.	DESCRIPTION	NOTES:
1	400-148	Locknut 4 x 40 Nylon S.S	
2	435-021	Handle, Wand 1.5 Tube	
3	480-200	Tubing 1/4 S.S	
4A	535-012	Valve Angle Brass (c/w trigger)	
4B	540-015	Repair kit	
5	555-108	Comp Fitting 1/4 x 1/4	
6	553-200	Vinyl Grip, 1-1/2 x 6	
7	561-130	Vee Jet (11001.5)1/4	
8	580-015	Q.C 1/4" Male (Closed)	
9	555-572	Hex Nipple, 1/4"	
10	538-220	Valve Hanger 1-1/2	

CLEANCO COMPACT ELECTRIC WIRING (P. 1)



CLEANCO COMPACT ELECTRIC WIRING (P. 2)